

CentralTM

Semiconductor Corp.



THE NEXT GENERATION OF SMD

S M D D A T A B O O K

1 9 9 9

CERTIFICATE



TUV Rheinland
of North America, Inc.
hereby certifies that

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788, USA

has established and applies
a quality system for
the Design and Manufacture of
Discrete Semiconductors.

An audit was performed, Report No. 7654

Proof has been furnished that the requirements according to
ISO 9001 / ANSI/ASQC Q9001-1994 / EN ISO 9001
are fulfilled.

The certificate is valid until
October 24, 2000

Certificate Registration No.
74 300 7654

Newtown, CT, October 24, 1997

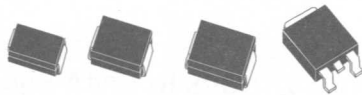
J. Schmitt
President



Newtown, CT, October 24, 1997

D. Rapp
Manager, Certification Office

New To This Edition...



SMD DATA BOOK 1999

LOW V_F SCHOTTKY RECTIFIERS

IN SMA, SMB, SMC, DPAK CASE

With a **forward voltage drop as low as .35V**, these devices are well suited for battery powered, hand-held applications such as pagers, laptops, and cell phones.

Available families are:

CMSH1-20ML	1.0 Amp series	see page 292
CMSH2-20L	2.0 Amp series	see page 296
CMSH3-20L	3.0 Amp series	see page 302
CSHD5-25L	5.0 Amps	see page 334
CSHD10-45L	10 Amps	see page 342



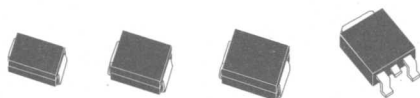
HIGH DENSITY SCHOTTKY RECTIFIERS

IN SMA, SMB, SMC CASE

A breakthrough in design! Increase your current handling capability with no increase in board space. The space previously required for 1.0 Amp, can now accommodate 2.0 Amps. The space formerly required for 2.0 Amps, can now handle 3.0 Amps, and that for 3.0 Amps, can now accept 5.0 Amps.

Available devices are:

CMSH2-20M series in SMA case (2.0 Amps)	see page 298
CMSH3-20M series in SMB case (3.0 Amps)	see page 304
CMSH5-40 series in SMC case (5.0 Amps)	see page 306



HIGH VOLTAGE SCHOTTKY

RECTIFIERS IN SMA, SMB, SMC, DPAK CASE

Once again, Central has expanded its line of Schottky Rectifiers. Improved technology now allows us to raise the **maximum voltage** offered from 60 Volts to **100 Volts**.

These devices are available in a wide variety of packages.

Available devices are:

CMSH1-100M	1.0 Amp in SMA case	see page 290
CMSH1-100	1.0 Amp in SMB case	see page 288
CMSH2-100M	2.0 Amps in SMA case (High Density)	see page 298
CMSH2-100	2.0 Amps in SMB case	see page 294
CMSH3-100M	3.0 Amps in SMB case (High Density)	see page 304
CSHD3-100	3.0 Amps in DPAK case	see page 332
CMSH5-100	5.0 Amps in SMC case (High Density)	see page 306
CSHD6-100C	6.0 Amps in DPAK case	see page 340

New To This Edition... Continued



CMZ5921B Series of Zener Diodes in SMA case

These 1.5 Watt devices offer **dramatic reduction in board area, weight and height**, over the SMB case. Available from 6.8 thru 200 Volts, these SMA Zeners offer **200 Watts of Transient Voltage Suppressor Peak Power**. (Additionally, the SMA case provides a 44% savings in weight and 15% savings in height as compared to the MELF).

See page 322.



CMZ5342B Series of high power 5.0W Zener Diodes in SMC case

This series of **high power**, high performance devices is specifically designed for demanding applications such as instrumentation and telecom, which require high regulation power in a small case. Available from 6.8 Volts thru 200 Volts.

See page 320.



Single and Dual Zener Diodes in SOT-323 Case

These new 250mW devices offer **increased space, weight, and height savings** over their counterparts in the SOT-23 package. Now available is the CMSZ5221B series (single)—available from 2.4 Volts thru 47 Volts, and the CMSZDA3V6 series (dual)—available from 3.6 Volts thru 47 Volts. Both series are ideal for portable and hand-held applications such as modems, cell phones and pagers, where board space is at a premium.

See page 316 & 318.



SOT-143 Dual, Isolated Diodes

In addition to the BAS28 and BAS56 Switching Diodes, Schottky and High Voltage Switching Diodes are now available in the SOT-143 case. These devices offer an **alternative for using two individual SOT-23 devices**, saving board space because both cases are the same size.

Available configurations are:

Dual, Switching Diode, High Voltage	BAW101	see page 90.
Dual, Switching Diode, High Voltage	CMFD2004i	see page 162.
Dual, Schottky Diode, High Current	CMFSH-3i	see page 164.

QUALITY POLICY

- Our definition of quality is **Complete Customer Satisfaction**.
- We are dedicated to manufacturing Competitively Priced, **Quality Products** delivered on time and professionally serviced.
- We define **Excellence** as surpassing our customers' expectations.
- Our perpetual challenge is the pursuit of **Achieving Excellence** in everything we do, and we strive to accomplish this by utilizing Ongoing Training for Continuous Improvement in all areas.
- We recognize that customer satisfaction results in **Repeat Business**.

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New To This Edition... Continued



Switching Diodes in SOT-323 case

Central has added several new devices in the **SUPERmini™** SOT-323 package.

These devices were previously only available in the SOT-23 case. The SOT-323 case provides **39% board space savings, 50% weight savings, and 22% height savings** over the SOT-23 case.

Available configurations are:

Dual, Common Anode	CMSD2836	See page 282.
Dual, Common Cathode	CMSD2838	See page 282.
Dual, In Series	CMSD7000	See page 286.
Dual, High Voltage, In Series	CMSD2004S	See page 280.



High Voltage Switching Diodes in SOT-23 case

These new devices complement Central's previous offering by expanding the configurations available to include common cathode (previously limited to single chip and two chips in series versions). The new CMPD2003S is a low cost version of the world renowned CMPD2004S.

Available configurations are:

Dual Switching Diode, In Series	(VRRM = 250V)	CMPD2003S
Dual Switching Diode, Common Cathode	(VRRM = 250V)	CMPD2003C
Dual Switching Diode, Common Cathode	(VRRM = 300V)	CMPD2004C

See page 170.



SOT-323 Schottky Diodes

Housed in the **SUPERmini™** SOT-323 case, these high current devices are ideal for applications such as detectors, mixers, and others which require a low V_F , minimal board space, and an extremely fast switching speed. As compared to the SOT-23, the **SUPERmini™ SOT-323 is 39% smaller, weighs 50% less, and has a 22% lower profile.**

Available configurations are:

Single	CMSSH-3
Dual, Common Anode	CMSSH-3A
Dual, Common Cathode	CMSSH-3C
Dual, In Series	CMSSH-3S

See page 308.

New To This Edition... Continued



600 Watt Transient Voltage Suppressors in SMB case

Central's first offering of TVS in SMD form, specified by either Stand-off or Breakdown voltage. These 600 Watt devices are offered in both uni-polar and bi-polar configurations, and are exact drop-on replacements for Motorola, General Semi, ST Microelectronics (SGS Thompson), Microsemi and Semtech.

Available series are:

Uni-polar, specified by Stand-off voltage
Bi-polar, specified by Stand-off voltage
Uni-polar, specified by Breakdown voltage
Bi-polar, specified by Breakdown voltage

1SMB5.0A thru 1SMB170A
1SMB5.0CA thru 1SMB170CA
P6SMB6.8A thru P6SMB200A
P6SMB6.8CA thru P6SMB200CA

See pages 72, 74 and 414, 416.



1500 and 3000 Watt TVS in SMC case

For TVS applications that demand higher power, these 1500W and 3000W series are now available. These series contain both uni-polar and bi-polar devices, which are specified by either Stand-off or Breakdown voltage.

Available series are:

Specified by Stand-off voltage, 1500W, uni-polar	1SMC5.0A thru 1SMC170A
Specified by Stand-off voltage, 1500W, bi-polar	1SMC5.0CA thru 1SMC170CA
Specified by Breakdown voltage, 1500W, uni-polar	1.5SMC6.8A thru 1.5SMC200A
Specified by Breakdown voltage, 1500W, bi-polar	1.5SMC6.8CA thru 1.5SMC200CA
Specified by Stand-off voltage, 3000W, uni-polar	3SMC5.0A thru 3SMC170A
Specified by Stand-off voltage, 3000W, bi-polar	3SMC5.0CA thru 3SMC170CA

Data sheets start on page 72



CMR1S Series Of 1.0 Amp Super Fast Rectifiers in SMB Case

These new devices have a faster switching speed, which increases the efficiency of the application. The CMR1S series is available in 100 and 200 Volt versions, and boasts: a **switching time of 35ns max** and a **forward voltage drop of .95V max**. Central's Super Fast Recovery Rectifiers are ideal for all types of commercial, industrial, computer and automotive applications, especially where switching time and efficiency are critical.

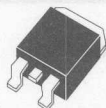
Available devices are:

CMR1S-01 (100 Volts)
CMR1S-02 (200 Volts)

See page 266.

New To The

Continued



D²PAK High Current Ultrafast & Schottky Rectifiers

16 Amps in SMD?! Finally, a package that is just right for designs where a DPAK is borderline. Make your application run even cooler with our Rectifiers in the new D²PAK case, available in 8.0 Amp (single) and 16 Amp (dual, common cathode) configurations.

See page 354 for Ultrafast and page 346 for Schottky.



SOD-80 0.5 Amp General Purpose Rectifiers

Take advantage of weight and space savings over the SMA case, without a significant reduction of current handling capability. Central has squeezed a 0.5 Amp rectifier into a package typically used for switching diodes. Available in 200, 400, and 600 volt configurations.

See page 152.



SOT-223 High Voltage Darlington Transistors

To round out our offering of high voltage Darlington Transistors, we have developed the CZTA27 High Voltage Darlington in the SOT-223 package. Operating at 60 Volts, this device is perfect for modem and driver applications requiring high voltage and high gain.

See page 408.



SOD-123 Switching, Schottky & Zener Diodes

In response to the industry's request for the elimination of a cylindrical package, we have developed Switching, Schottky and Zener Diodes in the SOD-123 package. These devices fit directly onto an SOD-80 mounting pad, and are direct replacements for Central's and Motorola's SOD-80 series. Central is now a second source to Motorola SOD-123 devices such as MMSZ5221B thru MMSZ5261B.

See pages 50,51 and 55.



Now Available- Devices in Chip Form for Hybrid Applications.
Consult factory for details.

Central
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Selected, Special and Custom SMDs

In addition to our standard surface mounted devices, Central Semiconductor is committed to building Selected, Special, and Custom SMDs.

SELECTED SMD

A selected SMD is a standard device that is selected for an additional or tightened electrical parameter(s).

For example:

CMPT2222A selected for higher voltage

The standard BV_{CEO} is 40 volts min and the customer's application requires 60 volts min.

CZT3019 selected for higher gain

The standard h_{FE} is 100 min, 300 max and the customer's special selection is 160 min, 300 max.

CMPZ5240B selected for tighter tolerance

The standard tolerance is $\pm 5\%$ and the customer requires $\pm 2\%$ tolerance.

SPECIAL SMD

A Special SMD is required when a selection of a standard device is not possible. Normally, this is accomplished through a special diffusion of a standard process.

For example:

CMPD2003 with ultra low leakage

A special diffusion is required to yield a leakage level far below the standard I_R of 100nA max.

CXT3904 with extremely high gain

A special diffusion is required to yield a minimum h_{FE} above the standard range of 100 min, 300 max. (example: a range of 320 min, 500 max)

CMR1U-04 with higher voltage

A special diffusion can be performed to yield a B_{VR} of 600 volts min, instead of 400 volts min.

CUSTOM SMD

A Custom SMD may be developed for a unique customer requirement. Custom devices can be obtained by either assembling one of our standard chips into a different case or by developing a completely new device.

For example:

CXSH-4 is a custom device that was developed for a customer requirement. This device is a Schottky Rectifier (normally built in a MELF or SMB case) assembled into an SOT-89 case to meet a very tight height restriction.

CBR1F-D020S is a custom device. Our standard SMD Bridge Rectifier is built with general purpose chips; this application requires fast recovery chips.

While other manufacturers shy away from Selected, Special and Custom devices, Central is committed to meeting Customer needs for Selected and Special SMDs.
Central will review and determine feasibility of Custom devices.

Selected, Special and Custom SMDs (cont.)

Examples of **Central's** Solutions to customer Problems.

Problem: A major PC manufacturer was designing a new palm top computer which required Schottky Rectifiers with an extremely low profile (under 2mm) in the power management section of its circuitry. All standard package types (SMA, SMB, MELF) have device heights greater than 2mm.



Solution: Central took the chip from its CSMH1-40M SMA and assembled it into an SOT-89 case normally reserved for transistors. A new standard device, CXSH-4, was born.

Problem: A major network card manufacturer required a rectifier with a switching speed of 35ns or less in order to make their design work properly. The Ultra Fast Rectifier CMR1U-02, with a switching speed of 50ns, was not fast enough.



Solution: Central's new Super Fast Rectifiers, the CMR1S-02 series, in the SMB case were designed to fill that need by guaranteeing a switching speed of 35ns.

Problem: A network systems manufacturer required a Bridge Rectifier with a switching speed under 100ns in order to improve its overall circuit efficiency..



Solution: Central assembled four chips from its CMR1U-02 Ultra Fast Rectifier into the SMDIP Bridge Rectifier case to create the CBR1U-D020S Ultra Fast Bridge Rectifier..

Problem: A major manufacturer of network cards in a PC Card format needed to pack additional features into a PCMCIA Type II card. Their original design required two individual SOT-23's.



Solution: Central squeezed two CMPZ52XXB Zener Diode chips into one SOT-23 package, yielding the customer a 50% reduction in board space.

Problem: A manufacturer of PC card instruments required a Bipolar Power Transistor to be used in their design. DPAKs are not suitable to fit into PCMCIA Type II cards, so a lower profile Small Signal package was required.



Solution: Central increased the die attach pad on the SOT-223 lead frame to accommodate the much larger Power Transistor chip. Central's CZT2955 and its Power223 series were born.

Problem: A major manufacturer of Process Control units used in caustic environments such as paper mills, refineries and power plants, was in need of transistors built without silver in the manufacturing process. Silver (combined with caustic fumes) can cause silver migration.



Solution: The industry's standard lead frames for Small Signal Transistors utilize silver plating in the die attach area. Central set up a special line to plate gold in the die attach area to meet the customer's requirements.

We are pleased to present the 1999 edition of Central Semiconductor Corp.'s Surface Mount Data Book.

Other available literature includes:

- CD ROM version of this catalog
- Discrete Semiconductor Selection Guide, featuring leaded devices
- Chip Brochure, featuring devices in chip form for Hybrid applications

We are an **ISO 9001** registered company whose business philosophy is centered around providing:

- perfect quality
- perfect service
- perfect delivery
- a reasonable price.

For more information about Central Semiconductor Corp., please visit our website at **www.centrasemi.com**, or contact us directly.

A Word About Our Cross Reference System

On page 10, you will find our Index/Cross Reference section. Many of Central's devices cross reference to Motorola, Philips, Siemens, General Semiconductor, ST Microelectronics (SGS Thompson), Microsemi, Fairchild, and other manufacturers. **Most of Central's part numbers begin with a "C", for easy identification.** Exceptions occur when we have adopted industry standard part numbers. *In this case, Central's part number is the same as the industry part number.*

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10BQ015	CMSH1-20ML	EM	66	292	6CWQ05F	CSHD6-60C	EM	68	338
10MF2	CMR1U-02M	EM	63	270	6CWQ06F	CSHD6-60C	EM	68	338
10MQ040	CMSH1-40M	EM	66	290	BAL99	CMPD914	CE	50	166
10MQ060	CMSH1-60M	EM	66	290	BAR42	CMPSH-3	SE	51	192
1N6478	CMR1-02M	EM	61	262	BAR43	CMPSH-3	EM	51	192
1N6479	CMR1-02M	EM	61	262	BAR43A	CMPSH-3A	EM	51	192
1N6481	CMR1-04M	EM	61	262	BAR43C	CMPSH-3C	EM	51	192
1N6482	CMR1-06M	EM	61	262	BAR43S	CMPSH-3S	EM	51	192
1N6483	CMR1-10M	EM	61	262	BAS16	CMPD 914	EM	50	166
1N6484	CMR1-10M	EM	61	262	BAS17	CBAS17	EM	52	94
1S2835	CMPD2836	EM	50	172	BAS19	CMPD2003	EM	50	170
1S2836	CMPD2836	EM	50	172	BAS20	CMPD2003	EM	50	170
1S2837	CMPD2838	EM	50	172	BAS21	CMPD2003	EM	50	170
1S2838	CMPD2838	EM	50	172	BAS28			50	86
1SMB5.0A thru			57	72	BAS29	CMPD1001	EM	50	168
1SMB170A			57	72	BAS31	CMPD1001S	EM	50	168
1SMB5.0CA thru			57	74	BAS32	CLL4448	EM	50	142
1SMB170CA			57	74	BAS32L	CLL4448	EM	50	142
1SMC5.0A thru			57	76	BAS35	CMPD1001A	EM	50	168
1SMC170A			57	76	BAS40	CMPSH-3	SE	51	192
1SMC5.0CA thru			57	78	BAS40-04	CMPSH-3S	SE	51	192
1SMC170CA			57	78	BAS40-05	CMPSH-3C	SE	51	192
1SR154-100	CMR1-02M	EM	61	262	BAS40-06	CMPSH-3A	SE	51	192
1SR154-200	CMR1-02M	EM	61	262	BAS40-07	CMFSH-3i	EM	51	164
1SR154-400	CMR1-04M	EM	61	262	BAS56			50	88
1SR154-600	CMR1-06M	EM	61	262	BAS70	CMPD6263	EM	51	180
1SR154-800	CMR1-10M	EM	61	262	BAS70-04	CMPD6263S	EM	51	180
1SR159-200	CMR1U-02M	EM	63	270	BAS70-05	CMPD6263C	EM	51	180
1SR56-100	CMR1F-02M	EM	62	264	BAS70-06	CMPD6263A	EM	51	180
1SR56-200	CMR1F-02M	EM	62	264	BAT17	CMPD6263	SE	51	180
1SR56-400	CMR1F-04M	EM	62	264	BAT18	CMPD6263	EM	51	180
1.5SMC6.8A thru			58	80	BAT54	CMPSH-3	EM	51	192
1.5SMC200A			58	80	BAT54A	CMPSH-3A	EM	51	192
1.5SMC6.8CA thru			58	82	BAT54C	CMPSH-3C	EM	51	192
1.5SMC200CA			58	82	BAT54S	CMPSH-3S	EM	51	192
2N7002			43	84	BAT64	CMPSH-3	EM	51	192
30BQ015	CMSH3-20L	EM	67	302	BAT74	CMFSH-3i	EM	51	164
30WF10F	CUD3-02	EM	63	348	BAV100	CLL4448	EM	50	142
30WF20F	CUD3-02	EM	63	348	BAV101	CLL2003	EM	50	134
30WF30F			—	*	BAV102	CLL2003	EM	50	134
30WF40F			—	*	BAV103	CLL2003	EM	50	134
30WQ03F	CSHD3-40	EM	67	328	BAV105	CLL4150	EM	50	140
30WQ04F	CSHD3-40	EM	67	328	BAV23	CMFD2004i	EM	50	162
30WQ05F	CSHD3-60	EM	67	330	BAV40W	CMSD7000	EM	50	286
30WQ06F	CSHD3-60	EM	67	330	BAV70	CMPD2838	EM	50	172
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3SMC170A			57	*	BAV74	CMPD2838	EM	50	172
50WF10F	CUD6-02C	EM	64	350	BAV99	CMPD7000	EM	50	182
50WF20F	CUD6-02C	EM	64	350	BAV99	CMPD7000	EM	50	182
50WF30F			—	*	BAV99WT1	CMSD7000	EM	50	286
50WF40F			—	*	BAW101			50	90
6CWF10F	CUD6-02C	EM	64	350	BAW56	CMPD2836	EM	50	172
6CWF20F	CUD6-02C	EM	64	350	BAW56WT1	CMSD2836	EM	50	282
6CWQ03F	CSHD6-40C	EM	68	336	BAY84	CMPD5001S	EM	50	178
6CWQ04F	CSHD6-40C	EM	68	336	BAY85	CMPD2004	EM	50	170

* Special Order

CE	Closest equivalent (slight to significant electrical and/or mechanical differences)	EM	Exact electrical and mechanical.
SE	Exact mechanical equivalent, slight electrical differences.	SM	Exact electrical equivalent, slight mechanical differences.

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BAY85S	CMPD2004S	EM	50	170	BCF29			45	*
BC807			44	*	BCF30			45	*
BC807.16			44	*	BCF32			45	*
BC807.25			44	*	BCF33			45	*
BC807.40			44	*	BCF70			45	*
BC808			44	*	BCF81			45	*
BC808.16			44	*	BCP28	CZTA64	EM	48	406
BC808.25			44	*	BCP29	CZTA14	EM	48	406
BC808.40			44	*	BCP48			---	*
BC817			44	*	BCP49			---	*
BC817.16			44	*	BCP51, -10, -16	CZT4033	EM	48	398
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BC848C			44	*	BCV71			45	*
BC849			44	*	BCV72			45	*
BC849B			44	*	BCW29			45	*
BC849C			44	*	BCW30			45	*
BC850			44	*	BCW31			45	*
BC850B			44	*	BCW32			45	*
BC850C			44	*	BCW33			45	*
BC856			44	*	BCW60			45	*
BC856A			44	*	BCW60A			45	*
BC856B			44	*	BCW60B			45	*
BC857			44	*	BCW60C			45	*
BC857A			44	*	BCW60D			45	*
BC857B			44	*	BCW61			45	*
BC857C			44	*	BCW61A			45	*
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BC858A			44	*	BCW61C			45	*
BC858B			45	*	BCW61D			45	*
BC858C			45	*	BCW65			45	*
BC859			45	*	BCW65A			45	*
BC859A			45	*	BCW65B			45	*
BC859B			45	*	BCW65C			45	*
BC859C			45	*	BCW66			45	*
BC860			45	*	BCW66F			45	*
BC860A			45	*	BCW66G			45	*
BC860B			45	*	BCW66H			45	*
BC860C			45	*	BCW67			45	*
BC868	CBCX68	EM	47	98	BCW67A			45	*
BC869	CBCX69	EM	47	98	BCW67B			45	*

* Special Order

CE	Closest equivalent (slight to significant electrical and/or mechanical differences)	EM	Exact electrical and mechanical.
SE	Exact mechanical equivalent, slight electrical differences.	SM	Exact electrical equivalent, slight mechanical differences.

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BCW68F			45	*	BFS19			*	*
BCW68G			45	*	BFS20			*	*
BCW68H			45	*	BSR12	CMPT3640	SE	42	208
BCW69			45	*	BSR13			45	*
BCW70			45	*	BSR14			45	*
BCW71			45	*	BSR15			45	*
BCW72			45	*	BSR16			45	*
BCW81			45	*	BSR17			45	*
BCW89			45	*	BSR17A			45	*
BCX17			45	*	BSR30	CXT4033	SE	47	366
BCX18			45	*	BSR31	CXT4033	SE	47	366
BCX19			45	*	BSR32	CXT4033	SE	47	366
BCX20			45	*	BSR33	CXT4033	SE	47	366
BCX51, -10, -16	CXT4033	EM	47	366	BSR40	CXT3019	SE	47	362
BCX52, -10, -16	CXT4033	EM	47	366	BSR41	CXT3019	SE	47	362
BCX53, -10, -16	CXT4033	EM	47	366	BSR42	CXT3019	SE	47	362
BCX54, -10, -16	CXT3019	EM	47	362	BSR43	CXT3019	SE	47	362
BCX55, -10, -16	CXT3019	EM	47	362	BSS63			—	*
BCX56, -10, -16	CXT3019	EM	47	362	BSS64			—	*
BCX68	CBCX68	EM	47	98	BST15	CXTA92	EM	47	376
BCX69	CBCX69	EM	47	98	BST16	CXTA92	SE	47	376
BCX70			45	*	BST39	CXTA42	SE	47	376
BCX70G			45	*	BST40	CXTA42	EM	47	376
BCX70H			45	*	BST50	CXTA14	CE	47	372
BCX70J			45	*	BST51	CXTA27	EM	47	374
BCX70K			45	*	BST52	CXTA28	EM	—	*
BCX71			45	*	BST60	CXTA64	CE	47	372
BCX71G			45	*	BST61			—	*
BCX71H			45	*	BST62			—	*
BCX71J			45	*	BSV52			45	*
BCX71K			45	*	BYD17D	CMR1-02M	CE	61	262
BF554			—	*	BYD17G	CMR1-06M	CE	61	262
BF599			—	*	BYD17J	CMR1-06M	CE	61	262
BF620	CXTA42	EM	47	376	BYD17K	CMR1-10M	CE	61	262
BF621	CXTA92	EM	47	376	BYD17M	CMR1-10M	CE	61	262
BF622	CXTA42	EM	47	376	BYD37D	CMR1F-02M	CE	62	264
BF623	CXTA92	EM	47	376	BYD37G	CMR1F-06M	CE	62	264
BF720	CZTA42	EM	48	410	BYD37J	CMR1F-06M	CE	62	264
BF721	CZTA92	EM	48	410	BYD37K	CMR1F-10M	CE	62	264
BF722	CZTA42	EM	48	410	BYD37M	CMR1F-10M	CE	62	264
BF723	CZTA92	EM	48	410	BYD77A	CMR1U-01M	CE	63	270
BF822			—	*	BYD77B	CMR1U-01M	CE	63	270
BF823			—	*	BYD77C	CMR1U-02M	CE	63	270
BFN16			—	*	BYD77D	CMR1U-02M	CE	63	270
BFN17			—	*	BYD77E	CMR1U-04M	CE	63	270
BFN18			—	*	BYD77F	CMR1U-04M	CE	63	270
BFN19			—	*	BYD77G	CMR1U-04M	CE	63	270
BFN22			—	*	BYM10- 50	CMR1-02M	EM	61	262
BFN23			—	*	BYM10- 100	CMR1-02M	EM	61	262
BFN36	CZTA42	EM	48	410	BYM10- 200	CMR1-02M	EM	61	262
BFN37	CZTA92	EM	48	410	BYM10- 400	CMR1-04M	EM	61	262
BFN38	CZTA42	EM	48	410	BYM10- 600	CMR1-06M	EM	61	262
BFN39	CZTA92	EM	48	410	BYM10- 800	CMR1-10M	EM	61	262

* Special Order

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BYM11- 50	CMR1F-02M	EM	62	264	CJD 31C			49	110
BYM11- 100	CMR1F-02M	EM	62	264	CJD 32C			49	110
BYM11- 200	CMR1F-02M	EM	62	264	CJD 41C			49	112
BYM11- 400	CMR1F-06M	EM	62	264	CJD 42C			49	112
BYM11- 600	CMR1F-06M	EM	62	264	CJD 44H11			49	114
BYM11- 800	CMR1F-10M	EM	62	264	CJD 45H11			49	114
BYM11-1000	CMR1F-10M	EM	62	264	CJD 47			49	116
BYM12- 50	CMR1U-01M	EM	63	270	CJD 50			49	116
BYM12-100	CMR1U-01M	EM	63	270	CJD 112			49	118
BYM12-150	CMR1U-02M	EM	63	270	CJD 117			49	118
BYM12-200	CMR1U-02M	EM	63	270	CJD 122			49	120
BYM12-300	CMR1U-04M	EM	63	270	CJD 127			49	120
BYM12-400	CMR1U-04M	EM	63	270	CJD 200			49	122
BYM13-20	CMSH1-20M	EM	66	290	CJD 210			49	122
BYM13-30	CMSH1-40M	EM	66	290	CJD 340			49	124
BYM13-40	CMSH1-40M	EM	66	290	CJD 350			49	124
BYM13-50	CMSH1-60M	EM	66	290	CJD 2955			49	126
BYM13-60	CMSH1-60M	EM	66	290	CJD 3055			49	126
BZX84C3V3 thru			54	92	CJD13003			49	128
BZX84C33			54	92	CLL 457A			52	130
CBAS17			52	94	CLL 459A			52	130
CBCP68			48	96	CLL 914			50	132
CBCP69			48	96	CLL2003			50	134
CBCX68			47	98	CLL3595			52	136
CBCX69			47	98	CLL4099 thru			55	138
CBR1-D020S			69	100	CLL4125			55	138
CBR1-D040S			69	100	CLL4150			50	140
CBR1-D060S			69	100	CLL4448			50	142
CBR1-D100S			69	100	CLL4614 thru			55	144
CBR1F-D020S			69	—	CLL4627			55	144*
CBR1F-D040S			69	—	CLL4678 thru			55	146
CBR1F-D060S			69	—	CLL4717			55	146
CBR1F-D100S			69	—	CLL4729A thru			56	148
CBR1U-D010S			69	102	CLL4764A			56	148*
CBR1U-D020S			69	102	CLL5226B thru			55	150
CBRHD-02			69	104	CLL5257B			55	150
CBRHD-04			69	104	CLLR1-02	CMR1-02M		61	262
CBRHD-06			69	104	CLLR1-04	CMR1-04M		61	262
CBRHD-10			69	104*	CLLR1-06	CMR1-06M		61	262
CCLHM080			60	106	CLLR1-10	CMR1-10M		61	262
CCLHM100			60	106	CLLR1F-02	CMR1F-02M		62	264
CCLHM120			60	106	CLLR1F-06	CMR1F-06M		62	264
CCLHM150			60	106	CLLR1F-10	CMR1F-10M		62	264
CCLM0035			59	108	CLLR1U-01	CMR1U-01M		63	270
CCLM0130			59	108	CLLR1U-02	CMR1U-02M		63	270
CCLM0300			59	108	CLLR1U-04	CMR1U-04M		63	270
CCLM0500			59	108	CLLRH-02			61	152
CCLM0750			59	108	CLLRH-04			61	152
CCLM1000			59	108	CLLRH-06			61	152
CCLM1500			59	108	CLLSH1-20	CMSH1-20M		66	290
CCLM2000			59	108	CLLSH1-40	CMSH1-40M		66	290
CCLM2700			59	108	CLLSH1-60	CMSH1-60M		66	290
CCLM3500			59	108	CMDSH-3			51	154
CCLM4500			59	108	CMDSH2-3			51	156

* Special Order

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CMDZ36L			53	158	CMPT2907A			42	204
CMDZ5221B thru			53	160	CMPT3019			42	206
CMDZ5261B			53	160	CMPT3640			42	208
CMFD2004i			50	162	CMPT3646			42	210
CMFSH-3i			51	164	CMPT3904			42	212
CMHD2003			50	*	CMPT3906			42	212
CMHD4448			50	*	CMPT4033			42	214
CMHSH-3			51	*	CMPT4401			42	216
CMHZ5221B thru			55	*	CMPT4403			42	216
CMHZ5265B			55	*	CMPT5086			42	218
CPMD 914			50	166	CMPT5087			42	218
CPMD1001			50	168	CMPT5088			42	220
CPMD1001A			50	168	CMPT5089			42	220
CPMD1001S			50	168	CMPT5179			43	222
CPMD2003			50	170	CMPT5401			43	224
CPMD2003C			50	170	CMPT5551			43	226
CPMD2003S			50	170	CMPT6427			43	228
CPMD2004			50	170	CMPT6428			42	230
CPMD2004C			50	170	CMPT6429			42	230
CPMD2004S			50	170	CMPT6517			43	232
CPMD2836			50	172	CMPT6520			43	232
CPMD2838			50	172	CMPT8099			42	234
CPMD4150			50	174	CMPT8599			42	234
CPMD4448			50	176	CMPTA06			42	236
CPMD5001			50	178	CMPTA13			43	238
CPMD5001S			50	178	CMPTA14			43	238
CPMD6263			51	180	CMPTA27			43	240
CPMD6263A			51	180	CMPTA29			43	242
CPMD6263C			51	180	CMPTA42			43	244
CPMD6263S			51	180	CMPTA44			43	246
CPMD7000			50	182	CMPTA56			42	236
CMPF4391			44	184	CMPTA63			43	238
CMPF4392			44	184	CMPTA64			43	238
CMPF4393			44	184	CMPTA92			43	244
CMPF4416A			44	186	CMPTH10			43	248
CMPF5460			44	*	CMPTZ4099 thru			54	250
CMPF5461			44	*	CMPTZ4124			54	250
CMPF5462			44	*	CMPTZ4614 thru			54	252*
CMPF5484			44	188	CMPTZ4627			54	252*
CMPF5485			44	188	CMPTZ4678 thru			54	254*
CMPF5486			44	188	CMPTZ4717			54	254*
CMPFJ174			44	*	CMPTZ5221B thru			54	256
CMPFJ175			44	*	CMPTZ5261B			54	256
CMPFJ176			44	*	CMPTZDA 3V6 thru			54	258
CMPFJ310			44	*	CMPTZDA33V			54	258
CMPS5064			70	190	CMR1-02			61	260
CMPSH-3			51	192	CMR1-02M			61	262
CMPSH-3A			51	192	CMR1-04			61	260
CMPSH-3C			51	192	CMR1-04M			61	262
CMPSH-3S			51	192	CMR1-06			61	260
CMPT 918			43	194	CMR1-06M			61	262
CMPT 930			42	196	CMR1-10			61	260
CMPT2222A			42	198	CMR1-10M			61	262
CMPT2369			42	200	CMR1F-02M			62	264

* Special Order

CE	Closest equivalent (slight to significant electrical and/or mechanical differences)	EM	Exact electrical and mechanical.
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CMR1F-06M			62	264	CMSH2-60M			66	298
CMR1F-10M			62	264	CMSH3-100			67	300
CMR1S-01			65	266	CMSH3-100M			67	304
CMR1S-02			65	266	CMSH3-20			67	300
CMR1U-01			63	268	CMSH3-20L			67	302
CMR1U-01M			63	270	CMSH3-20M			67	304
CMR1U-02			63	268	CMSH3-40			67	300
CMR1U-02M			63	270	CMSH3-40L			67	302
CMR1U-04			63	268	CMSH3-40M			67	304
CMR1U-04M			63	270	CMSH3-60			67	300
CMR1U-06			63	268	CMSH3-60M			67	304
CMR1U-06M			63	270	CMSH5-100			67	306
CMR1U-10			63	268	CMSH5-20			67	306
CMR1U-10M			63	270	CMSH5-40			67	306
CMR2-02			61	272	CMSH5-60			67	306
CMR2-04			61	272	CMSSH-3			51	308
CMR2-06			61	272	CMSSH-3A			51	308
CMR2-10			61	272	CMSSH-3C			51	308
CMR2U-01			63	274	CMSSH-3S			51	308
CMR2U-02			63	274	CMST2222A			46	310
CMR2U-04			63	274	CMST2907A			46	312
CMR2U-06			63	274	CMST3904			46	314
CMR3-02			61	276	CMST3906			46	314
CMR3-04			61	276	CMSZ5221B thru			53	316
CMR3-06			61	276	CMSZ5261B			53	316
CMR3-10			61	276	CMSZDA3V6 thru			53	318
CMR3U-01			63	278	CMSZDA33V			53	318
CMR3U-02			63	278	CMZ5342B thru			56	320
CMR3U-04			63	278	CMZ5388B			56	320
CMR3U-06			63	278	CMZ5921B thru			56	322
CMR3U-10			63	278	CMZ5956B			56	322
CMSD2004S			50	280	CQ89D			70	324
CMSD2836			50	282	CQ89DS			70	326
CMSD2838			50	282	CQ89M			70	324
CMSD4448			50	284	CQ89MS			70	326
CMSD7000			50	286	CQ89N			70	324
CMSH1-100			66	288	CQ89NS			70	326
CMSH1-100M			66	290	CSHD10-45L			68	342
CMSH1-20			66	288	CSHD3-100			67	332
CMSH1-20M			66	290	CSHD3-40			67	328
CMSH1-20ML			66	292	CSHD3-60			67	330
CMSH1-40			66	288	CSHD5-25L			67	334
CMSH1-40M			66	290	CSHD6-100C			68	340
CMSH1-40ML			66	292	CSHD6-40C			68	336
CMSH1-60			66	288	CSHD6-60C			68	338
CMSH1-60M			66	290	CSHDD16-100C			68	346
CMSH2-100			66	294	CSHDD16-40C			68	346
CMSH2-100M			66	298	CSHDD16-60C			68	346
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CMSH2-40			66	294	CUD3-02			63	348
CMSH2-40L			66	296	CUD6-02C			64	350
CMSH2-40M			66	298	CUDD8-02			64	352

* Special Order

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CUDD8-08			64	352	DAP202VAK	CMPD2836	EM	50	172
CUDD16-02C			64	354	DF005S	CBR 1-D020S	EM	69	100
CUDD16-04C			64	354	DF01S	CBR 1-D020S	EM	69	100
CUDD16-08C			64	354	DF02S	CBR 1-D020S	EM	69	100
CXSH-4			66	356	DF04S	CBR 1-D040S	EM	69	100
CXT2222A			47	358	DF06S	CBR 1-D060S	EM	69	100
CXT2907A			47	360	DF08S	CBR 1-D100S	EM	69	100
CXT3019			47	362	DF10S	CBR 1-D100S	EM	69	100
CXT3904			47	364	DFA08C	CMR1F-02M	EM	62	264
CXT3906			47	364	DFA08E	CMR1F-04M	EM	62	264
CXT4033			47	366	DL4001	CMR1-02M	EM	61	262
CXT5401			47	368	DL4002	CMR1-02M	EM	61	262
CXT5551			47	370	DL4003	CMR1-04M	EM	61	262
CXTA14			47	372	DL4004	CMR1-04M	EM	61	262
CXTA27			47	374	DL4729A thru	CLL4729A thru	EM	56	148
CXTA42			47	376	DL4764A	CLL4764A	EM	56	148
CXTA64			47	372	DL5817	CMSH1-20M	EM	66	290
CXTA92			47	376	DL5818	CMSH1-40M	EM	66	290
CZS5064			*	378	DL5819	CMSH1-40M	EM	66	290
CZSH-4			66	380	DLA11C	CMR1U-02M	EM	63	270
CZT 31C			49	382	DSM10C	CMR1-02M	EM	61	262
CZT 32C			49	382	DSM10E	CMR1-04M	EM	61	262
CZT 122			49	384	DSM10G	CMR1-06M	EM	61	262
CZT 127			49	384	DTZ 5.1 thru	CMDZ 5L1 thru	SE	53	158
CZT 2000			48	386	DTZ36	CMDZ36L	SE	53	158
CZT 2222A			48	388	EGL41A	CMR1U-01M	EM	63	270
CZT 2907A			48	390	EGL41B	CMR1U-01M	EM	63	270
CZT 2955			49	392	EGL41C	CMR1U-02M	EM	63	270
CZT 3019			48	394	EGL41D	CMR1U-02M	EM	63	270
CZT 3055			49	392	EGL41E	CMR1U-04M	EM	63	270
CZT 3904			48	396	EGL41F	CMR1U-04M	EM	63	270
CZT 3906			48	396	EGL41G	CMR1U-04M	EM	63	270
CZT 4033			48	398	ES1A	CMR1U-01M	EM	63	270
CZT 5338			49	400	ES1B	CMR1U-01M	EM	63	270
CZT 5401			48	402	ES1C	CMR1U-02M	EM	63	270
CZT 5551			48	404	ES1D	CMR1U-02M	EM	63	270
CZTA14			48	406	ES2A	CMR2U-01	EM	63	274
CZTA27			48	408	ES2B	CMR2U-01	EM	63	274
CZTA42			48	410	ES2C	CMR2U-02	EM	63	274
CZTA44			48	412	ES2D	CMR2U-02	EM	63	274
CZTA64			48	406	ES3A	CMR3U-01	EM	63	278
CZTA92			48	410	ES3B	CMR3U-01	EM	63	278
D1F10	CMR1-02M	EM	61	262	ES3C	CMR3U-02	EM	63	278
D1F20	CMR1-02M	EM	61	262	ES3D	CMR3U-02	EM	63	278
D1F40	CMR1-04M	EM	61	262	FDLL 914A	CLL4448	EM	50	142
D1F60	CMR1-06M	EM	61	262	FDLL 914B	CLL4448	EM	50	142
D1FK20	CMR1F-02M	EM	62	264	FDLL 916A	CLL4448	EM	50	142
D1FK40	CMR1F-04M	EM	62	264	FDLL 916B	CLL4448	EM	50	142
D1FL20	CMR1U-02M	EM	63	270	FDLL4148	CLL 914	EM	50	132
D1FS4	CMSH1-40M	EM	66	290	FDLL4149	CLL4448	EM	50	142
DA204K	CMPD7000	EM	50	182	FDLL4150	CLL4150	EM	50	140
DAN202VAK	CMPD2838	EM	50	172	FDLL4446	CLL4448	EM	50	142
DAN212K	CMPD 914	EM	50	166	FDLL4447	CLL4448	EM	50	142
DAN217	CMPD7000	EM	50	182	FDLL4448	CLL4448	EM	50	142

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FDSO1201	CPMD 914/4448	SE	50	166	FTSO2906	CMPT2907A	SE	42	204
FDSO1203	CPMD7000	SE	50	182	FTSO2906A	CMPT2907A	SE	42	204
FDSO1204	CPMD2838	SE	50	172	FTSO2907	CMPT2907A	EM	42	204
FDSO1205	CPMD2836	SE	50	172	FTSO2907A	CMPT2907A	EM	42	204
FDSO4148	CPMD 914	EM	50	166	FTSO3563	CMPT 918	SE	43	194
FMMD 914	CPMD 914	EM	50	166	FTSO3638	CMPT4403	SE	42	216
FMMD6050	CPMD4448	EM	50	176	FTSO3638A	CMPT4403	SE	42	216
FMMT 918	CMPT 918	EM	43	194	FTSO3639	CMPT3640	EM	42	208
FMMT2222	CMPT2222A	EM	42	198	FTSO3640	CMPT3640	EM	42	208
FMMT2222A	CMPT2222A	EM	42	198	FTSO3646	CMPT3646	EM	42	210
FMMT2369	CMPT2369	EM	42	200	FTSO3903	CMPT3904	SE	42	212
FMMT2369A			—	*	FTSO3904	CMPT3904	EM	42	212
FMMT2484	CMPT2484	EM	42	202	FTSO3905	CMPT3906	SE	42	212
FMMT2907	CMPT2907A	EM	42	204	FTSO3906	CMPT3906	EM	42	212
FMMT2907A	CMPT2907A	EM	42	204	FTSO4123	CMPT3904	SE	42	212
FMMT3903	CMPT3904	SE	42	212	FTSO4124	CMPT3904	SE	42	212
FMMT3904	CMPT3904	EM	42	212	FTSO4125	CMPT3906	SE	42	212
FMMT3905	CMPT3906	SE	42	212	FTSO4126	CMPT3906	SE	42	212
FMMT3906	CMPT3906	EM	42	212	FTSO4209	CMPT3640	SE	42	208
FMMT4124	CMPT3904	SE	42	212	FTSO4248	CMPT3640	SE	42	208
FMMT4125	CMPT3906	SE	42	212	FTSO4258	CMPT3640	SE	42	208
FMMT5087	CMPT5087	EM	42	218	FTSO4274	CMPT2369	SE	42	200
FMMTA05	CMPTA06	EM	42	236	FTSO4275	CMPT2369	SE	42	200
FMMTA06	CMPTA06	EM	42	236	FTSO4400	CMPT4401	SE	42	216
FMMTA12	CMPTA13	SE	43	238	FTSO4401	CMPT4401	EM	42	216
FMMTA13	CMPTA13	EM	43	238	FTSO4402	CMPT4403	SE	42	216
FMMTA14	CMPTA14	EM	43	238	FTSO4403	CMPT4403	EM	42	216
FMMTA20	CMPT3904	EM	42	212	FTSO5086	CMPT5086	EM	42	218
FMMTA42	CMPTA42	EM	43	244	FTSO5087	CMPT5087	EM	42	218
FMMTA43	CMPTA42	EM	43	244	FTSO5088	CMPT5088	EM	42	220
FMMTA55	CMPTA56	EM	42	236	FTSO5089	CMPT5089	EM	42	220
FMMTA56	CMPTA56	EM	42	236	FTSO5400	CMPT5401	EM	43	224
FMMTA70	CMPT3906	EM	42	212	FTSO5401	CMPT5401	EM	43	224
FMMTA92	CMPTA92	EM	43	244	FTSO5550	CMPT5551	EM	43	226
FMMTA93	CMPTA92	EM	43	244	FTSO5551	CMPT5551	EM	43	226
FTSO 706	CMPT2369	EM	42	200	FTSO5769	CMPT2369	SE	42	200
FTSO 706A	CMPT2369	EM	42	200	FTSO5770	CMPT 918	SE	43	194
FTSO 918	CMPT 918	EM	43	194	FTSO5771	CMPT3640	SE	42	208
FTSO 930	CMPT2484	SE	42	202	FTSOA05	CMPTA06	EM	42	236
FTSO 930A	CMPT2484	SE	42	202	FTSOA06	CMPTA06	EM	42	236
FTSO2218	CMPT2222A	SE	42	198	FTSOA12	CMPTA13	SE	43	238
FTSO2218A	CMPT2222A	SE	42	198	FTSOA13	CMPTA13	EM	43	238
FTSO2219	CMPT2222A	EM	42	198	FTSOA14	CMPTA14	EM	43	238
FTSO2219A	CMPT2222A	EM	42	198	FTSOA20	CMPT3904	EM	42	212
FTSO2221	CMPT2222A	SE	42	198	FTSOA42	CMPTA42	EM	43	244
FTSO2221A	CMPT2222A	SE	42	198	FTSOA43	CMPTA42	EM	43	244
FTSO2222	CMPT2222A	EM	42	198	FTSOA55	CMPTA56	EM	42	236
FTSO2222A	CMPT2222A	EM	42	198	FTSOA56	CMPTA56	EM	42	236
FTSO2369	CMPT2369	EM	42	200	FTSOA70	CMPT3906	EM	42	212
FTSO2369A			—	*	FTSOL01	CMPT5551	EM	43	226
FTSO2484	CMPT2484	EM	42	202	FTSOL51	CMPT5401	EM	43	224
FTSO2904	CMPT2907A	SE	42	204	GF1A	CMR1-02	EM	61	260
FTSO2904A	CMPT2907A	SE	42	204	GF1B	CMR1-02	EM	61	260
FTSO2905	CMPT2907A	EM	42	204	GF1D	CMR1-02	EM	61	260

* Special Order

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GF1J	CMR1-06	EM	61	260	MJD 50	CJD 50	EM	49	116
GF1K	CMR1-10	EM	61	260	MJD 112	CJD 112	EM	49	118
GF1M	CMR1-10	EM	61	260	MJD 117	CJD 117	EM	49	118
GL41A	CMR1-02M	SM	61	262	MJD 122	CJD 122	EM	49	120
GL41B	CMR1-02M	SM	61	262	MJD 127	CJD 127	EM	49	120
GL41D	CMR1-02M	SM	61	262	MJD 200	CJD 200	EM	49	122
GL41G	CMR1-04M	SM	61	262	MJD 210	CJD 210	EM	49	122
GL41J	CMR1-06M	SM	61	262	MJD 340	CJD 340	EM	49	124
GL41K	CMR1-10M	SM	61	262	MJD 350	CJD 350	EM	49	124
GL41M	CMR1-10M	SM	61	262	MJD 2955	CJD 2955	EM	49	126
GLL4735A thru	CLL4735A thru	EM	56	148	MJD 3055	CJD 3055	EM	49	126
GLL4763A	CLL4763A	EM	56	148	MJD13003	CJD13003	EM	49	128
LL103A	CMHSH-3	SM	51	*	MJD44H11	CJD44H11	EM	49	114
LL103B	CMHSH-3	SM	51	*	MJD45H11	CJD45H11	EM	49	114
LL103C	CMHSH-3	SM	51	*	MLL 746A thru	CLL5226B thru	EM	55	150
LL4148	CLL 914	EM	50	132	MLL759A	CLL5242B	EM	55	150
LL4150	CLL4150	EM	50	140	MLL957B	CLL5235B	EM	55	150
LL4448	CLL4448	EM	50	142	MLL 972B	CLL5256B	SE	55	150
M1MA141KT1	CM5D4448	EM	50	284	MLL4001	CMR1-02M	EM	61	262
M1MA141WKT1	CM5D2838	EM	50	282	MLL4002	CMR1-02M	EM	61	262
M1MA142KT1	CM5D4448	EM	50	284	MLL4003	CMR1-02M	EM	61	262
M1MA142WKT1	CM5D2838	EM	50	282	MLL4004	CMR1-04M	EM	61	262
MB2S	CBRHD-02	EM	69	104	MLL4625	CLL4625	EM	55	144
MB4S	CBRHD-04	EM	69	104	MLL4626	CLL4626	EM	55	144
MB6S	CBRHD-06	EM	69	104	MLL4627	CLL4627	EM	55	144
MBAL99	CMPD 914	EM	50	166	MLL4678 thru	CLL4678 thru	EM	55	146
MBAS16	CMPD 914	EM	50	166	MLL4717	CLL4717	EM	55	146
MBAV70	CMPD2838	EM	50	172	MLL4729A thru	CLL4729A thru	EM	56	148
MBAV99	CMPD7000	EM	50	182	MLL4764A	CLL4764A	EM	56	148
MBAW56	CMPD2836	EM	50	172	MLL5226B thru	CLL5226B thru	EM	55	150
MBRA130	CMSH1-40M	SE	66	290	MLL5257B	CLL5257B	EM	55	150
MBRA140	CMSH1-40M	EM	66	290	MMBD 101	CMPD6263	EM	51	180
MBRA160	CMSH1-60M	EM	66	290	MMBD 301	CMPSH-3	SE	51	192
MBRD340	CSDH3-40	EM	67	328	MMBD 330 T1	CMSH-3	EM	51	308
MBRD360	CSDH3-60	EM	67	330	MMBD 352	CMPD6263S	SE	51	180
MBRD640CT	CSDH6-40C	EM	68	336	MMBD 701	CMPD6263	SE	51	180
MBRD660CT	CSDH6-60C	EM	68	338	MMBD 914	CMPD 914	EM	50	166
MBRD835L	CSDH10-45L	SE	68	342	MMBD2835	CMPD2836	EM	50	172
MBRL120	CMSH1-20M	EM	66	290	MMBD2836	CMPD2836	EM	50	172
MBRL130	CMSH1-40M	EM	66	290	MMBD2837	CMPD2838	EM	50	172
MBRL140	CMSH1-40M	EM	66	290	MMBD2838	CMPD2838	EM	50	172
MBRO520	CMDSH2-3	CE	51	156	MMBD6050	CMPD4448	EM	50	176
MBRO530	CMDSH2-3	CE	51	156	MMBD6100	CMPD2838	EM	50	172
MBRO540	—	—	—	*	MMBD7000	CMPD7000	EM	50	182
MBRS120	CMSH1-20	EM	66	288	MMBF4391	CMPF4391	EM	44	184
MBRS130	CMSH1-40	EM	66	288	MMBF4392	CMPF4392	EM	44	184
MBRS140	CMSH1-40	EM	66	288	MMBF4393	CMPF4393	EM	44	184
MBRS170	CMSH1-100	EM	66	288	MMBF4416	CMPF4416	EM	44	186
MBRS340T3	CMSH3-40	EM	67	300	MMBF5484	CMPF5484	EM	44	188
MBRS360T3	CMSH3-60	EM	67	300	MMBF5486	CMPF5486	EM	44	188
MJD 31C	CJD 31C	EM	49	110	MMBR2857	CMPT5179	EM	43	222
MJD 32C	CJD 32C	EM	49	110	MMBR5179	CMPT5179	EM	43	222
MJD 41C	CJD 41C	EM	49	112	MMBS5060	CMPS5064	EM	70	190
MJD 42C	CJD 42C	EM	49	112	MMBS5061	CMPS5064	EM	70	190

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MMBS5062	CMPS5064	EM	70	190	MMBT93	CMPTA92	EM	43	244
MMBS5063	CMPS5064	EM	70	190	MMBTH10	CMPTH10	EM	43	248
MMBS5064	CMPS5064	EM	70	190	MMBZ15VA	CMPZDA15V	CE	54	258
MMBT 918	CMPT 918	EM	43	194	MMBZ15VD	CMPZDA15V	CE	54	258
MMBT2222	CMPT2222A	EM	42	198	MMBZ20VA	CMPZDA20V	CE	54	258
MMBT2222A	CMPT2222A	EM	42	198	MMBZ27VC	CMPZDA27V	CE	54	258
MMBT2222AW	CMST2222A	EM	46	310	MMBZ5221 thru	CMPZ5221B thru	EM	54	256
MMBT2369	CMPT2369	EM	42	200	MMBZ5259	CMPZ5259B	EM	54	256
MMBT2484	CMPT2484	EM	42	202	MMBZ5V6A	CMPZDA5V6	CE	54	258
MMBT2907	CMPT2907A	EM	42	204	MMBZ6V2A	CMPZDA6V2	CE	54	258
MMBT2907A	CMPT2907A	EM	42	204	MMST-A06	CMPTA06	EM	42	236
MMBT2907AW	CMST2907A	EM	46	312	MMST-A13	CMPTA13	EM	43	238
MMBT3638	CMPT4403	SE	42	216	MMST-A14	CMPTA14	EM	43	238
MMBT3638A	CMPT4403	SE	42	216	MMST-A20	CMPT3904	EM	42	212
MMBT3640	CMPT3640	EM	42	208	MMST-A56	CMPTA56	EM	42	236
MMBT3646	CMPT3646	EM	42	210	MMST-A63	CMPTA63	EM	43	238
MMBT3903	CMPT3904	SE	42	212	MMST-A64	CMPTA64	EM	43	238
MMBT3904	CMPT3904	EM	42	212	MMST-A70	CMPT3906	EM	42	212
MMBT3904W	CMST3904	EM	46	314	MMST 918	CMPT 918	EM	43	194
MMBT3906	CMPT3906	EM	42	212	MMST2222	CMPT2222A	EM	42	198
MMBT3906W	CMST3906	EM	46	314	MMST2222A	CMPT2222A	EM	42	198
MMBT4123	CMPT3904	SE	42	212	MMST2907	CMPT2907A	EM	42	204
MMBT4124	CMPT3904	SE	42	212	MMST2907A	CMPT2907A	EM	42	204
MMBT4125	CMPT3906	SE	42	212	MMST3904	CMPT3904	EM	42	212
MMBT4126	CMPT3906	SE	42	212	MMST3906	CMPT3906	EM	42	212
MMBT4401	CMPT4401	EM	42	216	MMST4124	CMPT3904	SE	42	212
MMBT4403	CMPT4403	EM	42	216	MMST4126	CMPT3906	SE	42	212
MMBT5086	CMPT5086	EM	42	218	MMST4401	CMPT4401	EM	42	216
MMBT5087	CMPT5087	EM	42	218	MMST4403	CMPT4403	EM	42	216
MMBT5088	CMPT5088	EM	42	220	MMST5086	CMPT5086	EM	42	218
MMBT5089	CMPT5089	EM	42	220	MMST5087	CMPT5087	EM	42	218
MMBT5401	CMPT5401	EM	43	224	MMST5088	CMPT5088	EM	42	220
MMBT5551	CMPT5551	EM	43	226	MMST5089	CMPT5089	EM	42	220
MMBT6427	CMPT6427	EM	43	228	MMSZ2V4thru	BZV55C2V4thru	SM		*
MMBT6428	CMPT6428	EM	42	230	MMSZ33	BZV55C33	SM		*
MMBT6429	CMPT6429	EM	42	230	MMSZ4678 thru	CLL4678 thru	SM	55	146
MMBT6517	CMPT6517	EM	43	232	MMSZ4717	CLL4717	SM	55	146
MMBT6520	CMPT6520	EM	43	232	MMSZ5226B thru	CMHZ5226B thru	EM	55	*
MMBT8099	CMPT8099	EM	42	234	MMSZ5257B	CMHZ5257B	EM	55	*
MMBT8599	CMPT8599	EM	42	234	MRA4003	CMR1-02M	EM	61	262
MMBT930	CMPT930	EM	42	196	MRA4004	CMR1-04M	EM	61	262
MMBTA05	CMPTA06	EM	42	236	MRA4005	CMR1-06M	EM	61	262
MMBTA06	CMPTA06	EM	42	236	MRA4006	CMR1-10M	EM	61	262
MMBTA13	CMPTA13	EM	43	238	MRA4007	CMR1-10M	EM	61	262
MMBTA14	CMPTA14	EM	43	238	MRA4935	CMR1F-02M	EM	62	264
MMBTA20	CMPT3904	EM	42	212	MRA4936	CMR1F-04M	EM	62	264
MMBTA27	CMPTA27	EM	43	240	MRA4937	CMR1F-06M	EM	62	264
MMBTA42	CMPTA42	EM	43	244	MURD320	CUD3-02	EM	63	348
MMBTA43	CMPTA42	EM	43	244	MURD620CT	CUD6-02C	EM	64	350
MMBTA44	CMPTA44	EM	43	246	MURS105	CMR1U-01	EM	63	268
MMBTA56	CMPTA56	EM	42	236	MURS110	CMR1U-01	EM	63	268
MMBTA63	CMPTA63	EM	43	238	MURS115	CMR1U-02	EM	63	268
MMBTA64	CMPTA64	EM	43	238	MURS120	CMR1U-02	EM	63	268
MMBTA70	CMPT3906	EM	42	212	MURS130	CMR1U-04	EM	63	268
MMBTA92	CMPTA92	EM	43	244	MURS140	CMR1U-04	EM	63	268

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MURS340	CMR3U-04	EM	63	278	PMBTA05	CMPTA06	EM	42	236
MURS360	CMR3U-06	EM	63	278	PMBTA06	CMPTA06	EM	42	236
MURS360T3	CMR3U-06	EM	63	278	PMBTA13	CMPTA13	EM	43	238
MXT2222	CXT2222A	EM	47	358	PMBTA14	CMPTA14	EM	43	238
MXT2222A	CXT2222A	EM	47	358	PMBTA20	CMPT3904	EM	42	212
MXT2907	CXT2907A	EM	47	360	PMBTA42	CMPTA42	EM	43	244
MXT2907A	CXT2907A	EM	47	360	PMBTA43	CMPTA42	EM	43	244
MXT3904	CXT3904	EM	47	364	PMBTA55	CMPTA56	EM	42	236
MXT3906	CXT3906	EM	47	364	PMBTA56	CMPTA56	EM	42	236
MXTA14	CXTA14	EM	47	372	PMBTA63	CMPTA63	EM	43	238
MXTA27	CXTA27	EM	47	374	PMBTA64	CMPTA64	EM	43	238
MXTA42	CXTA42	EM	47	376	PMBTA70	CMPT3906	EM	42	212
MXTA43	CXTA42	EM	47	376	PMBTA92	CMPTA92	EM	43	244
MXTA92	CXTA92	EM	47	376	PMBTA93	CMPTA92	EM	43	244
MXTA93	CXTA92	EM	47	376	PMBZ5221B thru	CMPTZ5221 thru	EM	54	256
P6SMB6.8A thru			58	414	PMBZ5261B	CMPTZ5261B	EM	54	256
P6SMB200A			58	414	PMLL4148	CLL 914	EM	50	132
P6SMB6.8CA thru			58	416	PMLL4150	CLL4150	EM	50	140
P6SMB200CA			58	416	PMLL4151	CLL4448	SE	50	142
PMBD 101	CMPTD6263	SE	51	180	PMLL4153	CLL4448	SE	50	142
PMBD 352	CMPTD6263S	SE	51	180	PMLL4446	CLL4448	EM	50	142
PMBD 914	CMPTD 914	EM	50	166	PMLL4448	CLL4448	EM	50	142
PMBD2835	CMPTD2836	EM	50	172	PMLL5226 thru	CLL5226B thru	EM	55	150
PMBD2836	CMPTD2836	EM	50	172	PMLL5257	CLL5257B	EM	55	150
PMBD2837	CMPTD2838	EM	50	172	PMST2222A	CMST2222A	EM	46	310
PMBD2838	CMPTD2838	EM	50	172	PMST2907A	CMST2907A	EM	46	312
PMBD6050	CMPTD4448	EM	50	176	PMST3904	CMST3904	EM	46	314
PMBD6100	CMPTD2838	EM	50	172	PMST3906	CMST3906	EM	46	314
PMBD7000	CMPTD7000	EM	50	182	PRL4001	CMR1-02M	CE	61	262
PMBF4391	CMPTF4391	EM	44	184	PRL4002	CMR1-02M	CE	61	262
PMBF4392	CMPTF4392	EM	44	184	PRL5817	CMSH1-20M	CE	66	290
PMBF4393	CMPTF4393	EM	44	184	PRL5818	CMSH1-40M	CE	66	290
PMBT2222	CMPT2222A	EM	42	198	PRL5819	CMSH1-40M	CE	66	290
PMBT2222A	CMPT2222A	EM	42	198	PXT2222	CXT2222A	EM	47	358
PMBT2369	CMPT2369	EM	42	200	PXT2222A	CXT2222A	EM	47	358
PMBT2907	CMPT2907A	EM	42	204	PXT2907	CXT2907A	EM	47	360
PMBT2907A	CMPT2907A	EM	42	204	PXT2907A	CXT2907A	EM	47	360
PMBT3640	CMPT3640	EM	42	208	PXT3904	CXT3904	EM	47	364
PMBT3903	CMPT3904	SE	42	212	PXT3906	CXT3904	EM	47	364
PMBT3904	CMPT3904	EM	42	212	PXT4401	CXT2222A	SE	47	358
PMBT3906	CMPT3906	EM	42	212	PXT4403	CXT2907A	SE	47	360
PMBT4123	CMPT3904	SE	42	212	PXTA14	CXTA14	EM	47	372
PMBT4124	CMPT3904	SE	42	212	PXTA27	CXTA27	EM	47	374
PMBT4125	CMPT3906	SE	42	212	PXTA42	CXTA42	EM	47	376
PMBT4126	CMPT3906	SE	42	212	PXTA64	CXTA64	EM	47	372
PMBT4401	CMPT4401	EM	42	216	PXTA92	CXTA92	EM	47	376
PMBT4403	CMPT4403	EM	42	216	PZT2222	CZT2222A	EM	48	388
PMBT5086	CMPT5086	EM	42	218	PZT2222A	CZT2222A	EM	48	388
PMBT5087	CMPT5087	EM	42	218	PZT2907	CZT2907A	EM	48	390
PMBT5088	CMPT5088	EM	42	220	PZT2907A	CZT2907A	EM	48	390
PMBT5089	CMPT5089	EM	42	220	PZT3904	CZT3904	EM	48	396
PMBT5400	CMPT5401	EM	43	224	PZT3906	CZT3906	EM	48	396
PMBT5401	CMPT5401	EM	43	224	PZTA13	CZTA14	EM	48	406
PMBT5551	CMPT5551	EM	43	226	PZTA14	CZTA14	EM	48	406

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PZTA43	CZTA42	EM	48	410	RS3B	CMR3U-01	EM	63	278
PZTA63	CZTA64	EM	48	406	RS3D	CMR3U-02	EM	63	278
PZTA64	CZTA64	EM	48	406	RS3G	CMR3U-04	EM	63	278
PZTA92	CZTA92	EM	48	410	RS3J	CMR3U-06	EM	63	278
PZTA93	CZTA92	EM	48	410	RXT-A14	CXTA14	EM	47	372
RB031B-40	CSHD3-40	EM	67	328	RXT-A64	CXTA64	EM	47	372
RB035B-40	CSHD6-40C	EM	68	336	RXT2222A	CXT2222A	EM	47	358
RB110C	CXSH-4	EM	66	356	RXT2907A	CXT2907A	EM	47	360
RB160L-40	CMSH1-40M	EM	66	290	RXT3904	CXT3904	EM	47	364
RB400D	CMPSH-3	SE	51	192	RXT3906	CXT3906	EM	47	364
RB420D	CMPSH-3	SE	51	192	RXTA27	CXTA27	EM	47	374
RB421D	CMPSH-3	SE	51	192	S1A	CMR1-02M	EM	61	262
RB425D	CMPSH-3C	SE	51	192	S1B	CMR1-02M	EM	61	262
RB705D	CMSH1-20	EM	66	288	S1D	CMR1-02M	EM	61	262
RD411D	CMPSH-3	SE	51	192	S1G	CMR1-04M	EM	61	262
RF1A	CMR1U-01	EM	63	268	S1J	CMR1-06M	EM	61	262
RF1B	CMR1U-01	EM	63	268	S1ZB10	CBRHD-02	EM	69	104
RF1D	CMR1U-02	EM	63	268	S1ZB20	CBRHD-02	EM	69	104
RF1G	CMR1U-04	EM	63	268	S1ZB40	CBRHD-04	EM	69	104
RGL41A	CMR1F-02M	EM	62	264	S1ZB60	CBRHD-06	EM	69	104
RGL41B	CMR1F-02M	EM	62	264	S2A	CMR2-02	EM	61	272
RGL41D	CMR1F-02M	EM	62	264	S2B	CMR2-02	EM	61	272
RGL41G	CMR1F-06M	EM	62	264	S2D	CMR2-02	EM	61	272
RGL41J	CMR1F-06M	EM	62	264	S2G	CMR2-04	EM	61	272
RGL41K	CMR1F-10M	EM	62	264	S2J	CMR2-06	EM	61	272
RGL41M	CMR1F-10M	EM	62	264	S2K	CMR2-10	EM	61	272
RLR4001	CMR1-02	EM	61	260	S2M	CMR2-10	EM	61	272
RLR4002	CMR1-02	EM	61	260	S3A	CMR3-02	EM	61	276
RLR4003	CMR1-02	EM	61	260	S3B	CMR3-02	EM	61	276
RLR4004	CMR1-04	EM	61	260	S3D	CMR3-02	EM	61	276
RLS4148	CLL 914	EM	50	132	S3G	CMR3-04	EM	61	276
RLS4149	CLL 914	EM	50	132	S3J	CMR3-06	EM	61	276
RLS4150	CLL4150	EM	50	140	S3K	CMR3-10	EM	61	276
RLS4151	CLL4448	SE	50	142	S3M	CMR3-10	EM	61	276
RLS4152	CLL4448	SE	50	142	SGL41-20	CMSH1-20M	EM	66	290
RLS4153	CLL4448	SE	50	142	SGL41-30	CMSH1-40M	EM	66	290
RLS4154	CLL4448	EM	50	142	SGL41-40	CMSH1-40M	EM	66	290
RLS4446	CLL4448	EM	50	142	SGL41-50	CMSH1-60M	EM	66	290
RLS4447	CLL4448	EM	50	142	SGL41-60	CMSH1-60M	EM	66	290
RLS4448	CLL4448	EM	50	142	SM4001	CMR1-02M	EM	61	262
RLS4449	CLL4448	EM	50	142	SM4002	CMR1-02M	EM	61	262
RLS4450	CLL4150	SE	50	140	SM4003	CMR1-02M	EM	61	262
RLS4454	CLL4448	EM	50	142	SM4004	CMR1-04M	EM	61	262
RLZ5227B thru	CLL5227B thru	EM	55	150	SM4005	CMR1-06M	EM	61	262
RLZ5257B	CLL5257B	EM	55	150	SM4006	CMR1-10M	EM	61	262
RS1A	CMR1F-02M	EM	62	264	SM4007	CMR1-10M	EM	61	262
RS1B	CMR1F-02M	EM	62	264	SM4933	CMR1F-02M	EM	62	264
RS1D	CMR1F-02M	EM	62	264	SM4934	CMR1F-02M	EM	62	264
RS1G	CMR1F-04M	EM	62	264	SM4935	CMR1F-02M	EM	62	264
RS1J	CMR1F-06M	EM	62	264	SM4936	CMR1F-06M	EM	62	264
RS2A	CMR2U-01	EM	63	274	SM4937	CMR1F-06M	EM	62	264
RS2B	CMR2U-01	EM	63	274	SMBD 914	CMPD 914	EM	50	166
RS2D	CMR2U-02	EM	63	274	SMBD2835	CMPD2836	EM	50	172
RS2G	CMR2U-04	EM	63	274	SMBD2836	CMPD2836	EM	50	172

* Special Order

CE	Closest equivalent (slight to significant electrical and/or mechanical differences)	EM	Exact electrical and mechanical.
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SMBD2837	CMPD2836	EM	50	172	SO2906	CMPT2907A	SE	42	204
SMBD2838	CMPD2838	EM	50	172	SO2906A	CMPT2907A	SE	42	204
SMBD6050	CMPD4448	EM	50	176	SO2907	CMPT2907A	EM	42	204
SMBD6100	CMPD2838	EM	50	172	SO2907A	CMPT2907A	EM	42	204
SMBD7000	CMPD7000	EM	50	182	SO3903	CMPT3904	SE	42	212
SMBJ5.0A thru	1SMB5.0A thru	EM	57	72	SO3904	CMPT3904	EM	42	212
SMBJ170A	1SMB170A	EM	57	72	SO3905	CMPT3906	SE	42	212
SMBJ5.0CA thru	1SMB5.0CA thru	EM	57	74	SO3906	CMPT3906	EM	42	212
SMBJ170CA	1SMB170CA	EM	57	74	SO4401	CMPT4401	EM	42	216
SMBT2222	CMPT2222A	EM	42	198	SO4403	CMPT4403	EM	42	216
SMBT2222A	CMPT2222A	EM	42	198	SO5400	CMPT5401	EM	43	224
SMBT2907	CMPT2907A	EM	42	204	SO5401	CMPT5401	EM	43	224
SMBT2907A	CMPT2907A	EM	42	204	SO5550	CMPT5551	EM	43	226
SMBT3904	CMPT3904	EM	42	212	SO5551	CMPT5551	EM	43	226
SMBT3906	CMPT3906	EM	42	212	SOA05	CMPTA06	EM	42	236
SMBT4124	CMPT3904	SE	42	212	SOA06	CMPTA06	EM	42	236
SMBT4126	CMPT3906	SE	42	212	SOA55	CMPTA56	EM	42	236
SMBT4401	CMPT4401	EM	42	216	SOA56	CMPTA56	EM	42	236
SMBT4403	CMPT4403	EM	42	216	SS12	CMSH1-20M	EM	66	290
SMBT5086	CMPT5086	EM	42	218	SS13	CMSH1-40M	EM	66	290
SMBT5087	CMPT5087	EM	42	218	SS14	CMSH1-40M	EM	66	290
SMBT5088	CMPT5088	EM	42	220	SS15	CMSH1-60M	EM	66	290
SMBTA05	CMPTA06	EM	42	236	SS16	CMSH1-60M	EM	66	290
SMBTA06	CMPTA06	EM	42	236	SS22	CMSH2-20	EM	66	294
SMBTA13	CMPTA13	EM	43	238	SS23	CMSH2-40	EM	66	294
SMBTA14	CMPTA14	EM	43	238	SS24	CMSH2-40	EM	66	294
SMBTA20	CMPT3904	EM	42	212	SS25	CMSH2-60	EM	66	294
SMBTA42	CMPTA42	EM	43	244	SS26	CMSH2-60	EM	66	294
SMBTA43	CMPTA42	EM	43	244	SS32	CMSH3-20	EM	67	300
SMBTA55	CMPTA56	EM	42	236	SS33	CMSH3-40	EM	67	300
SMBTA56	CMPTA56	EM	42	236	SS34	CMSH3-40	EM	67	300
SMBTA63	CMPTA63	EM	43	238	SS35	CMSH3-60	EM	67	300
SMBTA64	CMPTA64	EM	43	238	SS36	CMSH3-60	EM	67	300
SMBTA70	CMPT3904	EM	42	212	SST4391	CMPTA4391	EM	44	184
SMBTA92	CMPTA92	EM	43	244	SST4392	CMPTA4392	EM	44	184
SMBTA93	CMPTA92	EM	43	244	SST4393	CMPTA4393	EM	44	184
SMCJ5.0A thru	1SMC5.0A thru	EM	57	76	SST4416	CMPTA4416A	EM	44	186
SMCJ170A	1SMC170A	EM	57	76	SXT2222A	CXT2222A	EM	47	358
SMCJ5.0CA thru	1SMC5.0CA thru	EM	57	78	SXT2907A	CXT2907A	EM	47	360
SMCJ170CA	1SMC170CA	EM	57	78	SXT3904	CXT3904	EM	47	364
SO 517	CMPTA13	EM	43	238	SXT3906	CXT3906	EM	47	364
SO 642	CMPTA42	EM	43	244	SXTA42	CXTA42	EM	47	376
SO 692	CMPTA92	EM	43	244	SXTA43	CXTA42	EM	47	376
SO 918	CMPT918	EM	43	194	SXTA92	CXTA92	EM	47	376
SO 930	CMPT2484	SE	42	202	SXTA93	CXTA92	EM	47	376
SO1711	CMPT2222A	SE	42	198	TM4729A thru	CLL4729A thru	EM	56	148
SO1893	CMPT2222A	SE	42	198	TM4752A	CLL4752A	EM	56	148
SO2221	CMPT2222A	SE	42	198	TMM5226B thru	CLL5226B thru	EM	55	150
SO2221A	CMPT2222A	SE	42	198	TMM5257B	CLL5257B	EM	55	150
SO2222	CMPT2222A	EM	42	198	TMPD 914	CMPD 914	EM	50	166
SO2222A	CMPT2222A	EM	42	198	TMPD2835	CMPD2836	EM	50	172
SO2369	CMPT2369	EM	42	200	TMPD2836	CMPD2836	EM	50	172
SO2369A			—	*	TMPD2837	CMPD2838	EM	50	172
SO2484	CMPT2484	EM	42	202	TMPD2838	CMPD2838	EM	50	172
SO2894	CMPT3640	EM	42	208	TMPD4148	CMPD 914	EM	50	166

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TMPD4448	CMPD4448	EM	50	176	U1GC44	CMR1-04M	EM	61	262
TMPD6050	CMPD4448	EM	50	176	U1JC44	CMR1-06M	EM	61	262
TMPD6100	CMPD2838	EM	50	172	U05B4B48	CBRHD-02	EM	69	104
TMPD7000	CMPD7000	EM	50	182	U05D4B48	CBRHD-02	EM	69	104
TMPF4391	CMPF4391	EM	44	184	U05G4B48	CBRHD-04	EM	69	104
TMPF4392	CMPF4392	EM	44	184	U05J4B48	CBRHD-06	EM	69	104
TMPF4393	CMPF4393	EM	44	184	ZC2800E	CMPD6263	SE	51	180
TMPT 918	CMPT 918	EM	43	194	ZC2810E	CMPD6263	SE	51	180
TMPT2221	CMPT2222A	SE	42	198	ZC2811E	CMPD6263	SE	51	180
TMPT2221A	CMPT2222A	SE	42	198	ZC5800E	CMPD6263	SE	51	180
TMPT2222	CMPT2222A	EM	42	198	ZM4729A thru	CLL4729A	EM	56	148
TMPT2222A	CMPT2222A	EM	42	198	ZM4764A	CLL4764A	EM	56	148
TMPT2484	CMPT2484	EM	42	202					
TMPT2906	CMPT2907A	SE	42	204					
TMPT2906A	CMPT2907A	SE	42	204					
TMPT2907	CMPT2907A	EM	42	204					
TMPT2907A	CMPT2907A	EM	42	204					
TMPT3638	CMPT4403	SE	42	216					
TMPT3638A	CMPT4403	SE	42	216					
TMPT3798	CMPT5086	SE	42	218					
TMPT3903	CMPT3904	SE	42	212					
TMPT3904	CMPT3904	EM	42	212					
TMPT3905	CMPT3906	SE	42	212					
TMPT3906	CMPT3906	EM	42	212					
TMPT4124	CMPT3904	SE	42	212					
TMPT4125	CMPT3906	SE	42	212					
TMPT4126	CMPT3906	SE	42	212					
TMPT4401	CMPT4401	EM	42	216					
TMPT4402	CMPT4403	SE	42	216					
TMPT4403	CMPT4403	EM	42	216					
TMPT5086	CMPT5086	EM	42	218					
TMPT5087	CMPT5087	EM	42	218					
TMPT5088	CMPT5088	EM	42	220					
TMPT5401	CMPT5401	EM	43	224					
TMPT5550	CMPT5551	EM	43	226					
TMPT5551	CMPT5551	EM	43	226					
TMPTA05	CMPTA06	EM	42	236					
TMPTA06	CMPTA06	EM	42	236					
TMPTA12	CMPTA13	SE	43	238					
TMPTA13	CMPTA13	EM	43	238					
TMPTA14	CMPTA14	EM	43	238					
TMPTA20	CMPT3904	EM	42	212					
TMPTA42	CMPTA42	EM	43	244					
TMPTA43	CMPTA42	EM	43	244					
TMPTA55	CMPTA56	EM	42	236					
TMPTA56	CMPTA56	EM	42	236					
TMPTA63	CMPTA63	EM	43	238					
TMPTA64	CMPTA64	EM	43	238					
TMPTA70	CMPT3906	EM	42	212					
TMPTA92	CMPTA92	EM	43	244					
TMPTA93	CMPTA92	EM	43	244					
TMPZ5229 thru	CMPZ5229B thru	EM	54	256					
TMPZ5257	CMPZ5257B	EM	54	256					
U1BC44	CMR1-02M	EM	61	262					

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Leaded to Surface Mount Equivalents

<u>LEADED</u>	<u>SMD</u>	<u>CASE</u>	<u>COMMENTS</u>
1N 914	BAS28	SOT-143	Dual, Isolated
	CLL 914	SOD-80	Leadless Switching Diode
	CMPD 914	SOT-23	Single Switching Diode
	CMPD2836	SOT-23	Dual, Common Anode
	CMPD2838	SOT-23	Dual, Common Cathode
	CMPD7000	SOT-23	Dual, In Series
1N 914B	CLL4448	SOD-80	
	CMPD4448	SOT-23	
1N3600	BAS56	SOT-143	Dual High Current Diode, Isolated
	CLL4150	SOD-80	Leadless Switching Diode
	CMPD4150	SOT-23	Single Switching Diode
1N4001	CMR1-02	SMB	
	CMR1-02M	SMA	
1N4002	CMR1-02	SMB	
	CMR1-02M	SMA	
1N4003	CMR1-04	SMB	
	CMR1-04M	SMA	
1N4004	CMR1-04	SMB	
	CMR1-04M	SMA	
1N4005	CMR1-06	SMB	
	CMR1-06M	SMA	
1N4006	CMR1-10	SMB	
	CMR1-10M	SMA	
1N4007	CMR1-10	SMB	
	CMR1-10M	SMA	
1N4099 thru 1N4124	CLL4099 thru	SOT-23	
	CLL4125		
	CMPZ4099 thru	SOT-23	
	CMPZ4124		
1N4148	BAS28	SOT-143	Dual, Isolated
	CLL 914	SOD-80	Leadless Switching Diode
	CMPD 914	SOT-23	Single Switching Diode
	CMPD2836	SOT-23	Dual, Common Anode
	CMPD2838	SOT-23	Dual, Common Cathode
	CMPD7000	SOT-23	Dual, In Series
1N4150	BAS56	SOT-143	Dual High Current Diode, Isolated
	CLL4150	SOD-80	Leadless Switching Diode
	CMPD4150	SOT-23	Single Switching Diode
1N4448	CLL4448	SOD-80	Leadless Switching Diode
	CMPD2836	SOT-23	Dual, Common Anode
	CMPD2838	SOT-23	Dual, Common Cathode
	CMPD4448	SOT-23	Single Switching Diode
	CMPD7000	SOT-23	Dual, In Series

Leaded to Surface Mount Equivalents (Continued)

LEADED	SMD	CASE	COMMENTS
1N4728A thru 1N4764A	CLL4729A thru CLL4764A	MELF	
1N4933	CMR1U-01 CMR1U-01M	SMB SMA	
1N4934	CMR1U-01 CMR1U-01M	SMB SMA	
1N4935	CMR1U-02 CMR1U-02M	SMB SMA	
1N4936	CMR1U-04 CMR1U-04M	SMB SMA	
1N4937	CMR1U-06 CMR1U-06M	SMB SMA	
1N5221B thru 1N5261B	CLL5226B thru CLL5257B CMPZ5221B thru CMPZ5261B	SOD-80 SOT-23	
1N5400 thru 1N5408	CMR3-02 thru CMR3-10	SMC SMC	
1N5817	CMSH1-20 CMSH1-20M	SMB SMA	
1N5818	CMSH1-40 CMSH1-40M	SMB SMA	
1N5819	CMSH1-40 CMSH1-40M	SMB SMA	
1N5921B thru 1N5956B	CMZ5921B thru CMZ5956B	SMA	
1N6263	CPMD6263 CPMD6263A CPMD6263C CPMD6263S	SOT-23 SOT-23 SOT-23 SOT-23	Single Configuration Dual, Common Anode Dual, Common Cathode Dual, In Series
2N 918	CMPT 918	SOT-23	
2N2222A	CMPT2222A CXT2222A CZT2222A	SOT-23 SOT-89 SOT-223	
2N2369	CMPT2369	SOT-23	
2N2484	CMPT2484	SOT-23	
2N2907A	CMPT2907A CXT2907A CZT2907A	SOT-23 SOT-89 SOT-223	

SMD
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Leaded to Surface Mount Equivalents (Continued)

<u>LEADED</u>	<u>SMD</u>	<u>CASE</u>	<u>COMMENTS</u>
2N3019	CXT3019 CZT3019	SOT-89 SOT-223	
2N3055	CJD3055 CZT3055	DPAK SOT-223	
2N3904	CMPT3904 CXT3904 CZT3904	SOT-23 SOT-89 SOT-223	
2N3906	CMPT3906 CXT3906 CZT3906	SOT-23 SOT-89 SOT-223	
2N4033	CXT4033 CZT4033	SOT-89 SOT-223	
2N4391	CMPT4391	SOT-23	
2N4392	CMPT4392	SOT-23	
2N4393	CMPT4393	SOT-23	
2N4401	CMPT4401	SOT-23	
2N4403	CMPT4403	SOT-23	
2N4416A	CMPT4416A	SOT-23	
2N5060 thru 2N5064	CMPS5064	SOT-23	
2N5086	CMPT5086	SOT-23	
2N5087	CMPT5087	SOT-23	
2N5088	CMPT5088	SOT-23	
2N5089	CMPT5089	SOT-23	
2N5179	CMPT5179	SOT-23	
2N5401	CMPT5401 CXT5401 CZT5401	SOT-23 SOT-89 SOT-223	
2N5460	CMPT5460	SOT-23	Special order, consult factory
2N5461	CMPT5461	SOT-23	Special order, consult factory
2N5462	CMPT5462	SOT-23	Special order, consult factory
2N5485	CMPT5485	SOT-23	Special order, consult factory
2N5551	CMPT5551	SOT-23	

Leaded to Surface Mount Equivalents (Continued)

<u>LEADED</u>	<u>SMD</u>	<u>CASE</u>	<u>COMMENTS</u>
	CXT5551	SOT-89	
	CZT5551	SOT-223	
2N6427	CMPT6427	SOT-23	
2N6428	CMPT6428	SOT-23	
2N6429	CMPT6429	SOT-23	
2N6517	CMPT6517	SOT-23	
2N6520	CMPT6520	SOT-23	
CDSH-4	CMPSH-3	SOT-23	Single Configuration
	CMPSH-3A	SOT-23	Dual, Common Anode
	CMPSH-3C	SOT-23	Dual, Common Cathode
	CMPSH-3S	SOT-23	Dual, In Series
CSSD2003	CLL2003	SOD-80	
	CMPD2003	SOT-23	
D44H11	CJD44H11	DPAK	
D45H11	CJD45H11	DPAK	
MJ2955	CJD2955	DPAK	
	CZT2955	SOT-223	
MPS650	CBCP68	SOT-223	
	CBCX68	SOT-89	
MPS750	CBCP69	SOT-223	
	CBCX69	SOT-89	
MPS8099	CMPT8099	SOT-23	
MPS8599	CMPT8599	SOT-23	
MPSA06	CMPTA06	SOT-23	
MPSA13	CMPTA13	SOT-23	
MPSA14	CMPTA14	SOT-23	
	CXTA14	SOT-89	
	CZTA14	SOT-223	
MPSA27	CMPTA27	SOT-23	
	CXTA27	SOT-89	
	CZTA27	SOT-223	
MPSA42	CMPTA42	SOT-23	
	CXTA42	SOT-89	
	CZTA42	SOT-223	

SMD
EQUIV

Leaded to Surface Mount Equivalents (Continued)

<u>LEADED</u>	<u>SMD</u>	<u>CASE</u>	<u>COMMENTS</u>
MPSA44	CMPTA44 CZTA44	SOT-23 SOT-223	
MPSA56	CMPTA56	SOT-23	
MPSA63	CMPTA63	SOT-23	
MPSA64	CMPTA64 CXTA64 CZTA64	SOT-23 SOT-89 SOT-223	
MPSA92	CMPTA92 CXTA92 CZTA92	SOT-23 SOT-89 SOT-223	
MPSH10	CMPTH10	SOT-23	
PN3640	CMPT3640	SOT-23	
PN3646	CMPT3646	SOT-23	
TIP31A, B, C	CJD31C CZT31C	DPAK SOT-223	
TIP32A, B, C	CJD32C CZT32C	DPAK SOT-223	
TIP41A, B, C	CJD41C	DPAK	
TIP42A, B, C	CJD42C	DPAK	
TIP47	CJD47	DPAK	
TIP50	CJD50	DPAK	
TIP110, 111, 112	CJD112	DPAK	
TIP115, 116, 117	CJD117	DPAK	
TIP120, 121, 122	CJD122 CZT122	DPAK SOT-23	
TIP125, 126, 127	CJD127 CZT127	DPAK SOT-223	
TIP2955	CJD2955	DPAK	
TIP3055	CJD3055	DPAK	

Marking Codes

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
1 A	BC846A	4B	BC859B	8 AC	CMSZ5226B
1 A8	CMSZ5250B	4C	BC859C	8 B1	CMSZ5222B
1 B	BC846B	4E	BC860A	8 BC	CMSZ5227B
1 B8	CMSZ5251B	4F	BC860B	8 C1	CMSZ5223B
1 C8	CMSZ5252B	4G	BC860C	8 CC	CMSZ5228B
1 D8	CMSZ5253B	4P	CMDZ24L	8 D1	CMSZ5224B
1 E	BC847A	5A	BC807.16	8 DC	CMSZ5229B
1 E8	CMSZ5254B	5B	BC807.25	8 E1	CMSZ5225B
1 F	BC847B	5C	BC807.40	8 EC	CMSZ5230B
1 F8	CMSZ5255B	5CC	CMSD7000	8 FC	CMSZ5231B
1 FF	CMPT5551	5E	BC808.16	8 GC	CMSZ5232B
1 G	BC847C	5F	BC808.25	8 HC	CMSZ5233B
1 G8	CMSZ5256B	5G	BC808.40	8 JC	CMSZ5234B
1 H8	CMSZ5257B	5P	CMDZ27L	8 KC	CMSZ5235B
1 J	BC848A	6A	BC817.16	8 LC	CMSZ5236B
1 J8	CMSZ5258B	6B	BC817.25	8 MC	CMSZ5237B
1 K	BC848B	6B	CMPF5484	8 NC	CMSZ5238B
1 K8	CMSZ5259B	6B1	CMPF5485	8 P	CMDZ36L
1 L	BC848C	6BG	CMPF4416A	8 PC	CMSZ5239B
1 L8	CMSZ5260B	6C	BC817.40	8 QC	CMSZ5240B
1 M8	CMSZ5261B	6E	BC818.16	8 RC	CMSZ5241B
1 P	CMDZ18L	6E	CMPF5460	8 SC	CMSZ5242B
2 B	BC849B	6E1	CMPF5461	8 TC	CMSZ5243B
2 C	BC849C	6E2	CMPF5462	8 UC	CMSZ5244B
2 F	BC850B	6F	BC818.25	8 VC	CMSZ5245B
2 G	BC850C	6G	BC818.40	8 WC	CMSZ5246B
2 P	CMDZ20L	6G	CMPF4393	8 XC	CMSZ5247B
3A	BC856A	6H	CMPF5486	8 YC	CMSZ5248B
3B	BC856B	6J	CMPF4391	8 ZC	CMSZ5249B
3E	BC857A	6K	CMPF4392	10W	CMSZDA27V
3F	BC857B	6P	CMDZ30L	11W	CMSZDA30V
3G	BC857C	6S	CMPFJ176	12W	CMSZDA33V
3J	BC858A	6T	CMPFJ310	18 A	CMPZ5221B
3K	BC858B	6W	CMPFJ175	18 B	CMPZ5222B
3L	BC858C	6X	CMPFJ174	18 C	CMPZ5223B
3P	CMDZ22L	7P	CMDZ33L	18 D	CMPZ5224B
4A	BC859A	8 A1	CMSZ5221B	18 E	CMPZ5225B

CODES

Marking Codes (Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
81A	CMPZ5250B	BG	BCX71G	C 2U	CMPTA63
81B	CMPZ5251B	BH	BCX71H	C 2V	CMPTA64
81C	CMPZ5252B	BJ	BCX71J	C 2W	CMPT8599
81D	CMPZ5253B	BK	BCX71K	C 2X	CMPT4401
81E	CMPZ5254B	C 02	CMR1-02	C 2Z	CMPT6520
81F	CMPZ5255B	C 02M	CMR1-02M	C 3A	CMPT3019
81G	CMPZ5256B	C 04	CMR1-04	C 3B	CMPT 918
81H	CMPZ5257B	C 04M	CMR1-04M	C 3C	CMPD2003C
81J	CMPZ5258B	C 06	CMR1-06	C 3E	CMPTH10
81K	CMPZ5259B	C 06M	CMR1-06M	C 3I	CMFSH3i
81L	CMPZ5260B	C 1	BCW29	C 3S	CMPD2003S
81M	CMPZ5261B	C 1A	CMPT3904	C 3Z	CMPTA44
9 5D	CMSSH-3	C 1D	CMPTA42	C 4A	CMPT4033
702	2N7002	C 1G	CMPTA06	C 5C	CMPD7000
A 2C	CMSD2836	C 1J	CMPT2369	C 5D	CMPD 914
A 5D	CMSSH-3S	C 1K	CMPT6428	C 6V8A	P6SMB6.8A
A 61	BAS28	C 1L	CMPT6429	C 6V8A	1.5SMC6.8A
A 6C	CMSD2838	C 1M	CMPTA13	C 6V8C	1.5SMC6.8CA
A 82	CMPD2003	C 1N	CMPTA14	C 6V8C	P6SMB6.8CA
A 91	CBAS17	C 1P	CMPT2222A	C 7	BCF29
AA	BCW60A	C 1Q	CMPT5088	C 7H	CMPT5179
AAD	CMPD4448	C 1R	CMPT5089	C 7V5A	P6SMB7.5A
AB	BCW60B	C 1U	CMPT2484	C 7V5A	1.5SMC7.5A
ABA	CMPD4150	C 1V	CMPT6427	C 7V5C	1.5SMC7.5CA
AC	BCW60C	C 1X	CMPT 930	C 7V5C	P6SMB7.5CA
AD	BCW60D	C 1Z	CMPT6517	C 8	BCF30
AG	BCX70G	C 2	BCW30	C 8A	CMPZ5226B
AH	BCX70H	C 2A	CMPT3906	C 8B	CMPZ5227B
AJ	BCX70J	C 2D	CMPTA92	C 8C	CMPZ5228B
AK	BCX70K	C 2F	CMPT2907A	C 8D	CMPZ5229B
B1D	CMSSH-3A	C 2G	CMPTA56	C 8E	CMPZ5230B
B2	BSV52	C 2J	CMPT3640	C 8F	CMPZ5231B
B2D	CMSSH-3C	C 2L	CMPT5401	C 8G	CMPZ5232B
BA	BCW61A	C 2P	CMPT5086	C 8H	CMPZ5233B
BB	BCW61B	C 2Q	CMPT5087	C 8J	CMPZ5234B
BC	BCW61C	C 2R	CMPT3646	C 8K	CMPZ5235B
BD	BCW61D	C 2T	CMPT4403	C 8L	CMPZ5236B

CODES

Marking Codes

(Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
C 8M	CMPZ5237B	C 13C	1.5SMC13CA	C 33C	1.5SMC33CA
C 8N	CMPZ5238B	C 13C	P6SMB13CA	C 33C	P6SMB33CA
C 8P	CMPZ5239B	C 15A	P6SMB15A	C 36A	P6SMB36A
C 8Q	CMPZ5240B	C 15A	1.5SMC15A	C 36A	1.5SMC36A
C 8R	CMPZ5241B	C 15C	1.5SMC15CA	C 36C	1.5SMC36CA
C 8S	CMPZ5242B	C 15C	P6SMB15CA	C 36C	P6SMB36CA
C 8T	CMPZ5243B	C 16A	P6SMB16A	C 39A	P6SMB39A
C 8U	CMPZ5244B	C 16A	1.5SMC16A	C 39A	1.5SMC39A
C 8V	CMPZ5245B	C 16C	1.5SMC16CA	C 39C	1.5SMC39CA
C 8V2A	P6SMB8.2A	C 16C	P6SMB16CA	C 39C	P6SMB39CA
C 8V2A	1.5SMC8.2A	C 18A	P6SMB18A	C 43A	P6SMB43A
C 8V2C	1.5SMC8.2CA	C 18A	1.5SMC18A	C 43A	1.5SMC43A
C 8V2C	P6SMB8.2CA	C 18C	1.5SMC18CA	C 43C	1.5SMC43CA
C 8W	CMPZ5246B	C 18C	P6SMB18CA	C 43C	P6SMB43CA
C 8X	CMPZ5247B	C 20A	P6SMB20A	C 47A	P6SMB47A
C 8Y	CMPZ5248B	C 20A	1.5SMC20A	C 47A	1.5SMC47A
C 8Z	CMPZ5249B	C 20C	1.5SMC20CA	C 47C	1.5SMC47CA
C 9V1A	P6SMB9.1A	C 20C	P6SMB20CA	C 47C	P6SMB47CA
C 9V1A	1.5SMC9.1A	C 22A	P6SMB22A	C 51A	P6SMB51A
C 9V1C	1.5SMC9.1CA	C 22A	1.5SMC22A	C 51A	1.5SMC51A
C 9V1C	P6SMB9.1CA	C 22C	1.5SMC22CA	C 51C	1.5SMC51CA
C 10	CMR1-10	C 22C	P6SMB22CA	C 51C	P6SMB51CA
C 10A	P6SMB10A	C 24A	P6SMB24A	C 56A	P6SMB56A
C 10A	1.5SMC10A	C 24A	1.5SMC24A	C 56A	1.5SMC56A
C 10C	1.5SMC10CA	C 24C	1.5SMC24CA	C 56C	1.5SMC56CA
C 10C	P6SMB10CA	C 24C	P6SMB24CA	C 56C	P6SMB56CA
C 10M	CMR1-10M	C 27A	P6SMB27A	C 62A	P6SMB62A
C 11A	P6SMB11A	C 27A	1.5SMC27A	C 62A	1.5SMC62A
C 11A	1.5SMC11A	C 27C	1.5SMC27CA	C 62C	1.5SMC62CA
C 11C	1.5SMC11CA	C 27C	P6SMB27CA	C 62C	P6SMB62CA
C 11C	P6SMB11CA	C 29	CMPTA29	C 68A	P6SMB68A
C 12A	P6SMB12A	C 30A	P6SMB30A	C 68A	1.5SMC68A
C 12A	1.5SMC12A	C 30A	1.5SMC30A	C 68C	P6SMB68CA
C 12C	1.5SMC12CA	C 30C	1.5SMC30CA	C 68C	1.5SMC68CA
C 12C	P6SMB12CA	C 30C	P6SMB30CA	C 75A	P6SMB75A
C 13A	P6SMB13A	C 33A	P6SMB33A	C 75A	1.5SMC75A
C 13A	1.5SMC13A	C 33A	1.5SMC33A	C 75C	1.5SMC75CA

CODES

Marking Codes

Marking Code	Part Number
C 75C	P6SMB75CA
C 82A	P6SMB82A
C 82A	1.5SMC82A
C 82C	1.5SMC82CA
C 82C	P6SMB82CA
C 91A	P6SMB91A
C 91A	1.5SMC91A
C 91C	1.5SMC91CA
C 91C	P6SMB91CA
C100A	P6SMB100A
C100A	1.5SMC100A
C100C	1.5SMC100CA
C100C	P6SMB100CA
C110A	P6SMB110A
C110A	1.5SMC110A
C110C	1.5SMC110CA
C110C	P6SMB110CA
C120A	P6SMB120A
C120A	1.5SMC120A
C120C	1.5SMC120CA
C120C	P6SMB120CA
C130A	P6SMB130A
C130A	1.5SMC130A
C130C	1.5SMC130CA
C130C	P6SMB130CA
C150A	P6SMB150A
C150A	1.5SMC150A
C150C	1.5SMC150CA
C150C	P6SMB150CA
C160A	P6SMB160A
C160A	1.5SMC160A
C160C	1.5SMC160CA
C160C	P6SMB160CA
C170A	P6SMB170A
C170A	1.5SMC170A
C170C	1.5SMC170CA
C170C	P6SMB170CA

(Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
C180A	P6SMB180A	C5363B	CMZ5363B	C5364B	CMZ5364B
C180A	1.5SMC180A	C5365B	CMZ5365B	C5366B	CMZ5366B
C180C	1.5SMC180CA	C5367B	CMZ5367B	C5368B	CMZ5368B
C180C	P6SMB180CA	C5369B	CMZ5369B	C5370B	CMZ5370B
C200A	P6SMB200A	C5371B	CMZ5371B	C5372B	CMZ5372B
C200A	1.5SMC200A	C5373B	CMZ5373B	C5374B	CMZ5374B
C200C	1.5SMC200CA	C5375B	CMZ5375B	C5376B	CMZ5376B
C200C	P6SMB200CA	C5377B	CMZ5377B	C5378B	CMZ5378B
C202	CMR2-02	C5379B	CMZ5379B	C5380B	CMZ5380B
C204	CMR2-04	C5381B	CMZ5381B	C5382B	CMZ5382B
C206	CMR2-06	C5382B	CMZ5382B	C5383B	CMZ5383B
C210	CMR2-10	C5384B	CMZ5384B	C5385B	CMZ5385B
C302	CMR3-02	C5386B	CMZ5386B	C5387B	CMZ5387B
C304	CMR3-04	C5388B	CMZ5388B	C5921B	CMZ5921B
C306	CMR3-06	C5922B	CMZ5922B	C5923B	CMZ5923B
C310	CMR3-10	C5924B	CMZ5924B	C5925B	CMZ5925B
C5342B	CMZ5342B	C5926B	CMZ5926B	C5927B	CMZ5927B
C5343B	CMZ5343B	C5928B	CMZ5928B	C5929B	CMZ5929B
C5344B	CMZ5344B	C5930B	CMZ5930B	C5931B	CMZ5931B
C5345B	CMZ5345B				
C5346B	CMZ5346B				
C5347B	CMZ5347B				
C5348B	CMZ5348B				
C5349B	CMZ5349B				
C5350B	CMZ5350B				
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C5356B	CMZ5356B				
C5357B	CMZ5357B				
C5358B	CMZ5358B				
C5359B	CMZ5359B				
C5360B	CMZ5360B				
C5361B	CMZ5361B				
C5362B	CMZ5362B				

Marking Codes

(Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
C5932B	CMZ5932B	CBEE	1SMC12CA	CF04M	CMR1F-04M
C5933B	CMZ5933B	CBEG	1SMC13CA	CF06M	CMR1F-06M
C5934B	CMZ5934B	CBEK	1SMC14CA	CF10M	CMR1F-10M
C5935B	CMZ5935B	CBEM	1SMC15CA	CGDE	1SMC5.0A
C5936B	CMZ5936B	CBEP	1SMC16CA	CGDG	1SMC6.0A
C5937B	CMZ5937B	CBER	1SMC17CA	CGDK	1SMC6.5A
C5938B	CMZ5938B	CBET	1SMC18CA	CGDM	1SMC7.0A
C5939B	CMZ5939B	CBEV	1SMC20CA	CGDP	1SMC7.5A
C5940B	CMZ5940B	CBEX	1SMC22CA	CGDR	1SMC8.0A
C5941B	CMZ5941B	CBEZ	1SMC24CA	CGDT	1SMC8.5A
C5942B	CMZ5942B	CBFE	1SMC26CA	CGDV	1SMC9.0A
C5943B	CMZ5943B	CBFG	1SMC28CA	CGDX	1SMC10A
C5944B	CMZ5944B	CBFK	1SMC30CA	CGDZ	1SMC11A
C5945B	CMZ5945B	CBFM	1SMC33CA	CGEE	1SMC12A
C5946B	CMZ5946B	CBFP	1SMC36CA	CGEG	1SMC13A
C5947B	CMZ5947B	CBFR	1SMC40CA	CGEK	1SMC14A
C5948B	CMZ5948B	CBFT	1SMC43CA	CGEM	1SMC15A
C5949B	CMZ5949B	CBFV	1SMC45CA	CGEP	1SMC16A
C5950B	CMZ5950B	CBFX	1SMC48CA	CGER	1SMC17A
C5951B	CMZ5951B	CBFZ	1SMC51CA	CGET	1SMC18A
C5952B	CMZ5952B	CBGE	1SMC54CA	CGEV	1SMC20A
C5953B	CMZ5953B	CBGG	1SMC58CA	CGEX	1SMC22A
C5954B	CMZ5954B	CBGK	1SMC60CA	CGEZ	1SMC24A
C5955B	CMZ5955B	CBGM	1SMC64CA	CGFE	1SMC26A
C5956B	CMZ5956B	CBGP	1SMC70CA	CGFG	1SMC28A
CA2	CMPD2836	CBGR	1SMC75CA	CGFK	1SMC30A
CA6	CMPD2838	CBGT	1SMC78CA	CGFM	1SMC33A
CBDE	1SMC5.0CA	CBGV	1SMC85CA	CGFP	1SMC36A
CBDG	1SMC6.0CA	CBGX	1SMC90CA	CGFR	1SMC40A
CBDK	1SMC6.5CA	CBGZ	1SMC100CA	CGFT	1SMC43A
CBDM	1SMC7.0CA	CBHE	1SMC110CA	CGFV	1SMC45A
CBDP	1SMC7.5CA	CBHG	1SMC120CA	CGFX	1SMC48A
CBDR	1SMC8.0CA	CBHK	1SMC130CA	CGFZ	1SMC51A
CBDT	1SMC8.5CA	CBHM	1SMC150CA	CGGE	1SMC54A
CBDV	1SMC9.0CA	CBHP	1SMC160CA	CGGG	1SMC58A
CBDX	1SMC10CA	CBHR	1SMC170CA	CGGK	1SMC60A
CBDZ	1SMC11CA	CF02M	CMR1F-02M	CGGM	1SMC64A

CODES

Marking Codes (Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
CGGP	1SMC70A	CKZ	1SMB11A	CMVC	1SMB45CA
CGGR	1SMC75A	CKZC	1SMB11CA	CMX	1SMB48A
CGGT	1SMC78A	CLE	1SMB12A	CMXC	1SMB48CA
CGGV	1SMC85A	CLEC	1SMB12CA	CMZ	1SMB51A
CGGX	1SMC90A	CLG	1SMB13A	CMZC	1SMB51CA
CGGZ	1SMC100A	CLGC	1SMB13CA	CNE	1SMB54A
CGHE	1SMC110A	CLK	1SMB14A	CNEC	1SMB54CA
CGHG	1SMC120A	CLKC	1SMB14CA	CNG	1SMB58A
CGHK	1SMC130A	CLM	1SMB15A	CNGC	1SMB58CA
CGHM	1SMC150A	CLMC	1SMB15CA	CNK	1SMB60A
CGHP	1SMC160A	CLP	1SMB16A	CNKC	1SMB60CA
CGHR	1SMC170A	CLPC	1SMB16CA	CNM	1SMB64A
CH1J	CHT2369A	CLR	1SMB17A	CNMC	1SMB64CA
CH1P	CHT2222A	CLRC	1SMB17CA	CNP	1SMB70A
CH2F	CHT2907A	CLT	1SMB18A	CNPC	1SMB70CA
CH3B	CHT 918	CLTC	1SMB18CA	CNR	1SMB75A
CJP	BAW101	CLV	1SMB20A	CNRC	1SMB75CA
CJP	CMFD2004i	CLVC	1SMB20CA	CNT	1SMB78A
CKB	CMPT8099	CLX	1SMB22A	CNTC	1SMB78CA
CKE	1SMB5.0A	CLXC	1SMB22CA	CNV	1SMB85A
KEEC	1SMB5.0CA	CLZ	1SMB24A	CNVC	1SMB85CA
CKG	1SMB6.0A	CLZC	1SMB24CA	CNX	1SMB90A
CKGC	1SMB6.0CA	CME	1SMB26A	CNXC	1SMB90CA
CKK	1SMB6.5A	CMEC	1SMB26CA	CNZ	1SMB100A
CKKC	1SMB6.5CA	CMG	1SMB28A	CNZC	1SMB100CA
CKM	1SMB7.0A	CMGC	1SMB28CA	CPE	1SMB110A
CKMC	1SMB7.0CA	CMK	1SMB30A	CPEC	1SMB110CA
CKP	1SMB7.5A	CMKC	1SMB30CA	CPG	1SMB120A
CKPC	1SMB7.5CA	CMM	1SMB33A	CPGC	1SMB120CA
CKR	1SMB8.0A	CMMC	1SMB33CA	CPK	1SMB130A
CKRC	1SMB8.0CA	CMP	1SMB36A	CPKC	1SMB130CA
CKT	1SMB8.5A	CMPC	1SMB36CA	CPM	1SMB150A
CTC	1SMB8.5CA	CMR	1SMB40A	CPMC	1SMB150CA
CKV	1SMB9.0A	CMRC	1SMB40CA	CPP	1SMB160A
CKVC	1SMB9.0CA	CMT	1SMB43A	CPPC	1SMB160CA
CKX	1SMB10A	CMTC	1SMB43CA	CPR	1SMB170A
CKXC	1SMB10CA	CMV	1SMB45A	CPRC	1SMB170CA

Marking Codes

(Continued)

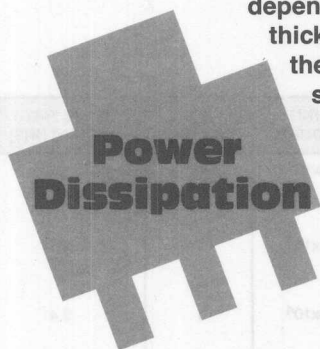
Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
CS 20	CMSH1-20	CU02	CMR1U-02	DC	BCW67C
CS 20M	CMSH1-20M	CU02M	CMR1U-02M	DF	BCW68F
CS 20ML	CMSH1-20ML	CU04	CMR1U-04	DG	BCW68G
CS 40	CMSH1-40	CU04M	CMR1U-04M	DH	BCW68H
CS 40M	CMSH1-40M	CU06	CMR1U-06	EA	BCW65A
CS 40ML	CMSH1-40ML	CU06M	CMR1U-06M	EB	BCW65B
CS 60	CMSH1-60	CU10	CMR1U-10	EC	BCW65C
CS 60M	CMSH1-60M	CU10M	CMR1U-10M	EF	BCW66F
CS100	CMSH1-100	CU201	CMR2U-01	EG	BCW66G
CS2 20	CMSH2-20	CU202	CMR2U-02	EH	BCW66H
CS2 20L	CMSH2-20L	CU204	CMR2U-04	FD	BCV26
CS2 20M	CMSH2-20M	CU206	CMR2U-06	FE	BCV46
CS2 40	CMSH2-40	CU301	CMR3U-01	FF	BCV27
CS2 40L	CMSH2-40L	CU302	CMR3U-02	FG	BCV47
CS2 40M	CMSH2-40M	CU304	CMR3U-04	FG	CMPTA27
CS2 60	CMSH2-60	CU306	CMR3U-06	H1	BCW69
CS2 60M	CMSH2-60M	CU310	CMR3U-10	H2	BCW70
CS2100	CMSH2-100	D 1	BCW31	H3	BCW89
CS2100M	CMSH2-100M	D 2	BCW32	H7	BCF70
CS3 20	CMSH3-20	D 3	BCW33	K1	BCW71
CS3 20L	CMSH3-20L	D 7	BCF32	K2	BCW72
CS3 20M	CMSH3-20M	D 8	BCF33	K3	BCW81
CS3 40	CMSH3-40	D49	CMPD5001S	K7	BCV71
CS3 40L	CMSH3-40L	D53	CMPD2004	K8	BCV72
CS3 40M	CMSH3-40M	D76	CMPD6263	K9	BCF81
CS3 60	CMSH3-60	D95	CMPSH-3	L20	CMPD1001
CS3 60M	CMSH3-60M	D96	CMPD6263S	L21	CMPD1001S
CS3100	CMSH3-100	D97	CMPD6263C	L22	CMPD1001A
CS3100M	CMSH3-100M	D98	CMPD6263A	L51	BAS56
CS5 20	CMSH5-20	DA	BCW67A	LP	CMDZ5L1
CS5 40	CMSH5-40	DA2	CMPD5001	NP	CMDZ5L6
CS5 60	CMSH5-60	DA5	CMPSH-3S	OP	CMDZ6L2
CS5100	CMSH5-100	DB	BCW67B	P2D	CMPS5064
CSF01	CMR1S-01	DB1	CMPSH-3A	PP	CMDZ6L8
CSF02	CMR1S-02	DB2	CMPSH-3C	QP	CMDZ7L5
CU01	CMR1U-01	DB6	CMPD2004S	RP	CMDZ8L2
CU01M	CMR1U-01M	DB7	CMPD2004C	S1	CMDSH-3

CODES

Marking Codes

(Continued)

Marking Code	Part Number	Marking Code	Part Number	Marking Code	Part Number
S2	CMDSH2-3	Y 5	BZX84C16	Z8	BZX84C9V1
SP	CMDZ9L1	Y 5Y	CMSZDA16V	Z8Z	CMSZDA9V1
T1	BCX17	Y 6	BZX84C18	Z9	BZX84C10
T2	BCX18	Y 6Y	CMSZDA18V	Z9Z	CMSZDA10V
T7	BSR15	Y 7	BZX84C20	ZP	CMDZ16L
T8	BSR16	Y 7Y	CMSZDA20V	ZZ1	CMPZDA4V7
TP	CMDZ10L	Y 8	BZX84C22	ZZ2	CMPZDA5V1
U1	BCX19	Y 8Y	CMSZDA22V	ZZ3	CMPZDA5V6
U2	BCX20	Y 9	BZX84C24	ZZ4	CMPZDA6V2
U7	BSR13	Y 9Y	CMSZDA24V	ZZ5	CMPZDA6V8
U8	BSR14	Y10	BZX84C27	ZZ6	CMPZDA7V5
U9	BSR17	Y11	BZX84C30	ZZ7	CMPZDA8V2
U92	BSR17A	Y12	BZX84C33	ZZ8	CMPZDA9V1
UP	CMDZ11L	YP	CMDZ15L	ZZ9	CMPZDA10V
VP	CMDZ12L	YY1	CMPZDA11V		
W 6	BZX84C3V3	YY2	CMPZDA12V		
W 7	BZX84C3V6	YY3	CMPZDA13V		
W 7W	CMSZDA3V6	YY4	CMPZDA15V		
W 8	BZX84C3V9	YY5	CMPZDA16V		
W 8W	CMSZDA3V9	YY6	CMPZDA18V		
W 9	BZX84C4V3	YY7	CMPZDA20V		
W 9W	CMSZDA4V3	YY8	CMPZDA22A		
W10	CMPZDA27V	YY9	CMPZDA24V		
W11	CMPZDA30V	Z1	BZX84C4V7		
W12	CMPZDA33V	Z1Z	CMSZDA4V7		
WW7	CMPZDA3V6	Z2	BZX84C5V1		
WW8	CMPZDA3V9	Z2Z	CMSZDA5V1		
WW9	CMPZDA4V3	Z3	BZX84C5V6		
XP	CMDZ13L	Z3Z	CMSZDA5V6		
Y 1	BZX84C11	Z4	BZX84C6V2		
Y 1Y	CMSZDA11V	Z4Z	CMSZDA6V2		
Y 2	BZX84C12	Z5	BZX84C6V8		
Y 2Y	CMSZDA12V	Z5Z	CMSZDA6V8		
Y 3	BZX84C13	Z6	BZX84C7V5		
Y 3Y	CMSZDA13V	Z6Z	CMSZDA7V5		
Y 4	BZX84C15	Z7	BZX84C8V2		
Y 4Y	CMSZDA15V	Z7Z	CMSZDA8V2		



Power dissipation of a surface mounted discrete semiconductor is dependent on many factors among which are, substrate material/ thickness, bonding pad surface area/thickness, and proximity of the device to other components. The most critical of these is substrate material. Due to these variables, power dissipation is listed below as a range.

CASE	POWER DISSIPATION RANGE
DPAK	12.5W - 20W
SOT-23	200mW - 400mW
SOT-89	400mW - 1600mW
SOT-143	200mW - 400mW
SOT-223	1000mW - 2000mW
SOD-80	350mW - 600mW
MELF	900mW - 1200mW
SMA	1000mW - 2000mW
SMB	1000mW - 2000mW

The low end of the power dissipation range relates to device dissipation in "free air @ $T_A = 25^{\circ}\text{C}$." The upper end of the range relates to optimum dissipation levels which are attainable when the SMD is mounted on an alumina (ceramic) substrate.

Midrange dissipation levels are for traditional glass-epoxy PC boards (FR-4 material).

It is important that the design engineer consider all the factors influencing power dissipation for each application.

Typical Reliability Data, SOT-23 Transistor

TEST	TEST CONDITION	SAMPLE SIZE	UNIT HOURS	NO. FAILURES	FAILURE RATE (1) (%/1000 HRS)
OPERATING LIFE (LOAD LIFE)	$T_A = 25^{\circ}\text{C}$, $P = P_D$ MAX $V_{CB} = 80\% V_{CB}$ MAX $t = 1000$ hours	1160	1.16×10^6	1	0.18
HIGH TEMPERATURE STORAGE LIFE	$T_A = 150^{\circ}\text{C}$ $t = 1000$ hours	1160	1.16×10^6	0	0.08
HIGH TEMPERATURE REVERSE BIAS LIFE	$T_A = 125^{\circ}\text{C}$ $V_{CB} = 80\% V_{CB}$ MAX $t = 1000$ hours	1160	1.16×10^6	2	0.27
HUMIDITY LIFE (MOISTURE RESISTANCE)	$T_A = 85^{\circ}\text{C}$, R.H.=85% MIL-STD 202, Method 103B $t = 1000$ hours, Condition B	1160	1.16×10^6	2	0.27
TEMPERATURE CYCLING (THERMAL SHOCK)	$T_L = -55^{\circ}\text{C}$, $T_H = 150^{\circ}\text{C}$ $t_L = t_H = 30$ min $t_{\text{TRANSFER}} = 2$ min. max @ $T_A = 25^{\circ}\text{C}$ 5 cycles	1160	--	1	--
PRESSURE COOKER (MOISTURE RESISTANCE)	$T_A = 122^{\circ}\text{C}$, $P = 2$ atmos. 6 hours per cycle 5 cycles (30 hours total)	1160	--	2	--
SOLDERING HEAT (THERMAL SHOCK)	$T_A = 260^{\circ} \pm 5^{\circ}\text{C}$, 60Sn/40Pb total immersion $t_{\text{IMMERSION}} = 10 \pm \frac{2}{0}$ sec	360	--	2	--

(1) 60% CONFIDENCE LEVEL

REL
DATA

Typical Reliability Data (Continued)

SOT-23 Silicon Diode

TEST	TEST CONDITION	SAMPLE SIZE	UNIT HOURS	NO. FAILURES	FAILURE RATE (1) (%/1000 HRS)
OPERATING LIFE (LOAD LIFE)	$T_A=25^{\circ}\text{C}$, $I_O=80\%$ I_O Rated $V_R=80\%$ V_R Rated $t=1000$ hours	60	6×10^4	0	1.5
HIGH TEMPERATURE STORAGE LIFE	$T_A=150^{\circ}\text{C}$ $t=1000$ hours	60	6×10^4	1	3.4
HIGH TEMPERATURE REVERSE BIAS LIFE	$T_A=125^{\circ}\text{C}$ $V_R=80\%$ V_R Rated $t=1000$ hours	60	6×10^4	1	3.4
HUMIDITY LIFE (MOISTURE RESISTANCE)	$T_A=85^{\circ}\text{C}$, R.H.=85% MIL-STD 202, Method 103B $t=1000$ hours, Condition B	60	6×10^4	0	1.5
TEMPERATURE CYCLING (THERMAL SHOCK)	$T_L=-55^{\circ}\text{C}$, $T_H=150^{\circ}\text{C}$ $t_L=t_H=30$ min $t_{\text{TRANSFER}}=2$ min max @ $T_A=25^{\circ}\text{C}$ 5 cycles	60	--	0	--
PRESSURE COOKER (MOISTURE RESISTANCE)	$T_A=122^{\circ}\text{C}$, $P=2$ atmos. 6 hours per cycle 5 cycles (30 hours total)	60	--	0	--
SOLDERING HEAT (THERMAL SHOCK)	$T_A=260^{\circ}\pm 5^{\circ}\text{C}$, 60Sn/40Pb total immersion $t_{\text{IMMERSION}}=10^{+2}_{-0}$ sec	360	--	2	--

(1) 60% CONFIDENCE LEVEL

SOT-23 Zener Diode

TEST	TEST CONDITION	SAMPLE SIZE	UNIT HOURS	NO. FAILURES	FAILURE RATE (1) (%/1000 HRS)
OPERATING LIFE	$T_A=25^{\circ}\text{C}$, $P=P_D$ MAX $t=1000$ hours	60	6×10^4	0	1.5
HIGH TEMPERATURE STORAGE LIFE	$T_A=150^{\circ}\text{C}$ $t=1000$ hours	60	6×10^4	0	1.5
HUMIDITY LIFE (MOISTURE RESISTANCE)	$T_A=85^{\circ}\text{C}$, R.H.=85% MIL-STD 202, Method 103B $t=1000$ hours, Condition B	60	6×10^4	1	3.4
TEMPERATURE CYCLING (THERMAL SHOCK)	$T_L=-55^{\circ}\text{C}$, $T_H=150^{\circ}\text{C}$ $t_L=t_H=30$ min $t_{\text{TRANSFER}}=2$ min max @ $T_A=25^{\circ}\text{C}$ 5 cycles	60	--	0	--
PRESSURE COOKER (MOISTURE RESISTANCE)	$T_A=122^{\circ}\text{C}$, $P=2$ atmos. 6 hours per cycle 5 cycles (30 hours total)	60	--	0	--
SOLDERING HEAT (THERMAL SHOCK)	$T_A=260^{\circ}\pm 5^{\circ}\text{C}$, 60Sn/40Pb total immersion $t_{\text{IMMERSION}}=10^{+2}_{-0}$ sec	360	--	2	--

(1) 60% CONFIDENCE LEVEL

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GUIDE



Small Signal Transistors U.S. Specification (Preferred Series)

SOT-23 Case, 350mW

TYPE NO.	BV _{CBO}	BV _{CEO}	BV _{EBO}	I _{CBO}	I _{CES}	h _{FE}	V _{CE}	I _C	V _{CE(SAT)}	I _C	C _{ob}	f _T	NF	t _{off}
	(V)	(V)	(V)	(nA)	(V)		(V)	(mA)	(V)	(mA)	(pF)	(MHz)	(dB)	(ns)
	MIN	MIN	MIN	MAX		MIN	MAX		MAX		MAX	MIN	MAX	MAX

General Purpose Amplifier/Switches

Devices are listed in order of descending breakdown voltage.

NPN

CMPT8099	80	80	6.0	100	80	100	300	5.0	1.0	0.4	100	6.0	150	-	-
CMPT2222A	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0	285
CMPT3904	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0	250
CMPT4401	60	40	6.0	100*	35	100	300	1.0	150	0.75	500	6.5	200	-	255

PNP

CMPT8599	80	80	5.0	100	80	100	300	5.0	1.0	0.4	100	4.5	150	-	-
CMPT2907A	60	60	5.0	10	50	100	300	10	150	1.6	500	8.0	200	-	100
CMPT3906	40	40	5.0	50*	30	100	300	1.0	10	0.4	50	4.5	250	4.0	300
CMPT4403	40	40	5.0	100*	35	100	300	2.0	150	0.75	500	8.5	200	-	255

Saturated Switches

Devices are listed in order of descending f_T.

NPN

CMPT2369	40	15	4.5	400	20	40	120	1.0	10	0.25	10	4.0	500	-	18
CMPT3646	40	15	5.0	500*	20	15	-	1.0	300	0.5	300	5.0	350	-	28

PNP

CMPT3640	12	12	4.0	10*	6.0	30	120	0.3	10	0.5	50	3.5	300	-	60
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Low Noise Amplifiers

Devices are listed in order of ascending NF.

NPN

CMPT930	45	45	5.0	10	45	100	300	5.0	0.01	1.0	10	8.0	30	3.0	-
CMPT5089	30	25	4.5	50	15	400	1,200	5.0	0.1	0.5	10	4.0	50	2.0	-
CMPT2484	60	60	6.0	10	45	250	-	5.0	1.0	0.35	1.0	6.0	-	3.0	-
CMPT5088	35	30	4.5	50	20	300	900	5.0	0.1	0.5	10	4.0	50	3.0	-
CMPT6428	60	50	6.0	10	30	250	650	5.0	0.1	0.6	100	3.0	100	-	-
CMPT6429	55	45	6.0	10	30	500	1,250	5.0	0.1	0.6	100	3.0	100	-	-

PNP

CMPT5087	50	50	3.0	50	35	250	800	5.0	0.1	0.3	10	4.0	40	2.0	-
CMPT5086	50	50	3.0	50	35	150	500	5.0	0.1	0.3	10	4.0	40	3.0	-

High Current

Devices are listed in order of descending breakdown voltage.

NPN

CMPT3019	120	80	7.0	10	90	100	300	10	150	0.5	500	12	100	4.0	-
CMPTA06	80	80	4.0	100	80	50	-	1.0	100	0.25	100	-	100	-	-

PNP

CMPT4033	80	80	5.0	50	60	100	300	5.0	100	0.5	500	20	100	-	-
CMPTA56	80	80	4.0	100	80	50	-	1.0	100	0.25	100	-	50	-	-



Small Signal Transistors U.S. Specification (Preferred Series)

SOT-23 Case, 350mW (Continued)

TYPE NO.	BV _{CB0}	BV _{CEO} BV _{CES}	BV _{EB0}	I _{CBO} @ V _{CB} I _{CES}	h _{FE}	@ V _{CE}	@ I _C	V _{CE(SAT)} @ I _C	C _{ob}	f _T	NF	t _{off}
	(V)	(V)	(V)	(nA)		(V)	(mA)	(V)	(pF)	(MHz)	(dB)	(ns)
	MIN	MIN	MIN	MAX	MIN	MAX		MAX	MAX	MIN	MAX	MAX

High Voltage NPN

Devices are listed in order of descending breakdown voltage.

CMPTA44	450	400	6.0	100	400	30	200	10	10	0.75	50	7.0	20	-	-
CMPT6517	350	350	5.0	50	250	30	200	10	30	1.0	50	6.0	40	-	-
CMPTA42	300	300	6.0	100	200	40	-	10	30	0.5	20	3.0	50	-	-
CMPT5551	180	160	6.0	50	120	80	250	5.0	10	0.2	50	6.0	100	8.0	-

PNP

CMPT6520	350	350	5.0	50	250	30	200	10	30	1.0	50	6.0	40	-	-
CMPTA92	300	300	5.0	250	200	25	-	10	30	0.5	20	6.0	50	-	-
CMPT5401	160	150	5.0	50	120	60	240	5.0	10	0.5	50	6.0	100	8.0	-

RF Oscillator NPN

Devices are listed in order of descending f_T.

CMPT5179	20	12	2.5	20	15	25	250	1.0	3.0	0.4	10	1.0	900	4.5	-
CMPTH10	30	25	3.0	100	25	60	-	10	4.0	0.5	4.0	0.7	650	-	-
CMPT918	30	15	3.0	10	15	20	-	1.0	3.0	0.4	10	1.7	600	6.0	-

Darlington NPN

Devices are listed in order of descending h_{FE}.

CMPT6427	40	40	12	50	30	20,000	200,000	5.0	100	1.5	500	7.0	130	10	-
CMPTA14	30	30*	10	100	30	20,000	-	5.0	100	1.5	100	-	125	-	-
CMPTA13	30	30*	10	100	30	10,000	-	5.0	100	1.5	100	-	125	-	-
CMPTA27	60	60*	10	100	50	10,000	-	5.0	100	1.5	100	-	125	-	-
CMPTA29	100	100	12	100	80	10,000	-	5.0	100	1.5	100	8.0	125	-	-

PNP

CMPTA64	30	30*	10	100	30	20,000	-	5.0	100	1.5	100	-	125	-	-
CMPTA63	30	30*	10	100	30	10,000	-	5.0	100	1.5	100	-	125	-	-

Shaded areas indicate Darlington.



Small Signal MOSFET

SOT-23 Case

TYPE NO.	r _{DS(ON)} @ I _D	V _{GS(th)}	BV _{DSS}	C _{iss}	C _{rss}	t _{on}	t _{off}
	(Ω) (A)	(V)	(V)	(pF)	(pF)	(ns)	(ns)
	MAX	MIN	MAX	MAX	MAX	MAX	MAX
2N7002	7.5	1.0	2.5	60	50	5.0	20

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Junction FETs

SOT-23 Case

TYPE NO.	BV _{GSS}	I _{DSS}		V _{GS(OFF)}		r _{DS(ON)}	NF **TYP	t _{off}
	(V) MIN	(mA) MIN	MAX	(V) MIN	MAX	(Ω) MAX	(dB) MAX	(ns) MAX

Amplifiers

N Channel

CMPF4416A	35	5.0	15	2.5	6.0	-	2.0	-
CMPF5484	25	1.0	5.0	0.3	3.0	-	3.0	-
CMPF5485	25	4.0	10	0.5	4.0	-	2.0	-
CMPF5486	25	8.0	20	2.0	6.0	-	2.0	-
CMPFJ310*	25	24	60	2.0	6.5	-	1.5**	-

P Channel

CMPF5460*	40	1.0	5.0	0.75	6.0	-	2.5	-
CMPF5461*	40	2.0	9.0	1.0	7.5	-	2.5	-
CMPF5462*	40	4.0	16	1.8	9.0	-	2.5	-

Switches / Choppers

N Channel

CMPF4391	40	50	150	4.0	10	30	-	20
CMPF4392	40	25	75	2.0	5.0	60	-	35
CMPF4393	40	5.0	30	0.5	3.0	100	-	50

P Channel

CMPFJ174*	30	2.0	100	5.0	10	85	-	-
CMPFJ175*	30	7.0	60	3.0	6.0	125	-	-
CMPFJ176*	30	2.0	25	1.0	4.0	250	-	-

*Available on special order, consult factory.



Transistors SOT-23 Case Proelectron Series 350mW

TYPE NO.	DESCRIPTION	BV _{CEO} (VOLTS)	BV _{CEO} (VOLTS)	BV _{ES0} (VOLTS)	I _{CEO} (mA)	V _{CE} (VOLTS)	h _{FE}	V _{CE} (VOLTS)	I _C (mA)	V _{CE} (SAT) (VOLTS)	I _C (mA)	C _{ob} (pF)	f _T (MHz)	NF (dB)	t _{OFF} (ns)	MARKING CODE	SIMILAR LEADED DEVICE	
		MIN	MIN	MIN	MAX	MIN		MAX	MAX	MAX	MAX	MAX	TYP	MAX	MAX			
BC807	PNP HIGH CURRENT	50*	45	5.0	100	20	100	600	1.0	100	0.70	500	8.0	100	—	—	—	BC327
BC807.16	PNP HIGH CURRENT	50*	45	5.0	100	20	100	250	1.0	100	0.70	500	8.0	100	—	—	5A	BC327.16
BC807.25	PNP HIGH CURRENT	50*	45	5.0	100	20	160	400	1.0	100	0.70	500	8.0	100	—	—	5B	BC327.25
BC807.40	PNP HIGH CURRENT	50*	45	5.0	100	20	250	600	1.0	100	0.70	500	8.0	100	—	—	5C	BC327.40
BC808	PNP HIGH CURRENT	30*	25	5.0	100	20	100	600	1.0	100	0.70	500	8.0	100	—	—	—	BC328
BC808.16	PNP HIGH CURRENT	30*	25	5.0	100	20	100	250	1.0	100	0.70	500	8.0	100	—	—	5E	BC328.16
BC808.25	PNP HIGH CURRENT	30*	25	5.0	100	20	160	400	1.0	100	0.70	500	8.0	100	—	—	5F	BC328.25
BC808.40	PNP HIGH CURRENT	30*	25	5.0	100	20	250	600	1.0	100	0.70	500	8.0	100	—	—	5G	BC328.40
BC817	NPN HIGH CURRENT	50*	45	5.0	100	20	100	600	1.0	100	0.70	500	5.0	200	—	—	—	BC337
BC817.16	NPN HIGH CURRENT	50*	45	5.0	100	20	100	250	1.0	100	0.70	500	5.0	200	—	—	6A	BC337.16
BC817.25	NPN HIGH CURRENT	50*	45	5.0	100	20	160	400	1.0	100	0.70	500	5.0	200	—	—	6B	BC337.25
BC817.40	NPN HIGH CURRENT	50*	45	5.0	100	20	250	600	1.0	100	0.70	500	5.0	200	—	—	6C	BC337.40
BC818	NPN HIGH CURRENT	30*	25	5.0	100	20	100	600	1.0	100	0.70	500	5.0	200	—	—	—	BC338
BC818.16	NPN HIGH CURRENT	30*	25	5.0	100	20	100	250	1.0	100	0.70	500	5.0	200	—	—	6E	BC338.16
BC818.25	NPN HIGH CURRENT	30*	25	5.0	100	20	160	400	1.0	100	0.70	500	5.0	200	—	—	6F	BC338.25
BC818.40	NPN HIGH CURRENT	30*	25	5.0	100	20	250	600	1.0	100	0.70	500	5.0	200	—	—	6G	BC338.40
BC846	NPN LOW NOISE	80	65	6.0	15	30	110	450	5.0	2.0	0.60	100	2.5	300	10	—	—	BC546
BC846A	NPN LOW NOISE	80	65	6.0	15	30	110	220	5.0	2.0	0.60	100	2.5	300	10	—	1A	BC546A
BC846B	NPN LOW NOISE	80	65	6.0	15	30	200	450	5.0	2.0	0.60	100	2.5	300	10	—	1B	BC546B
BC847	NPN LOW NOISE	50	45	6.0	15	30	110	800	5.0	2.0	0.60	100	2.5	300	10	—	—	BC547
BC847A	NPN LOW NOISE	50	45	6.0	15	30	110	220	5.0	2.0	0.60	100	2.5	300	10	—	1E	BC547A
BC847B	NPN LOW NOISE	50	45	6.0	15	30	200	450	5.0	2.0	0.60	100	2.5	300	10	—	1F	BC547B
BC847C	NPN LOW NOISE	50	45	6.0	15	30	420	800	5.0	2.0	0.60	100	2.5	300	10	—	1G	BC547C
BC848	NPN LOW NOISE	30	30	5.0	15	30	110	800	5.0	2.0	0.60	100	2.5	300	10	—	—	BC548
BC848A	NPN LOW NOISE	30	30	5.0	15	30	110	220	5.0	2.0	0.60	100	2.5	300	10	—	1J	BC548A
BC848B	NPN LOW NOISE	30	30	5.0	15	30	200	450	5.0	2.0	0.60	100	2.5	300	10	—	1K	BC548B
BC848C	NPN LOW NOISE	30	30	5.0	15	30	420	800	5.0	2.0	0.60	100	2.5	300	10	—	1L	BC548C
BC849	NPN LOW NOISE	30	30	5.0	15	30	200	800	5.0	2.0	0.60	100	2.5	300	4.0	—	—	BC549
BC849B	NPN LOW NOISE	30	30	5.0	15	30	200	450	5.0	2.0	0.60	100	2.5	300	4.0	—	2B	BC549B
BC849C	NPN LOW NOISE	30	30	5.0	15	30	420	800	5.0	2.0	0.60	100	2.5	300	4.0	—	2C	BC549C
BC850	NPN LOW NOISE	50	50	5.0	15	30	200	800	5.0	2.0	0.60	100	2.5	300	3.0	—	—	BC550
BC850B	NPN LOW NOISE	50	50	5.0	15	30	200	450	5.0	2.0	0.60	100	2.5	300	3.0	—	2F	BC550B
BC850C	NPN LOW NOISE	50	50	5.0	15	30	420	800	5.0	2.0	0.60	100	2.5	300	3.0	—	2G	BC550C
BC856	PNP LOW NOISE	80	65	5.0	15	30	75	800	5.0	2.0	0.65	100	4.5	150	10	—	—	BC556
BC856A	PNP LOW NOISE	80	65	5.0	15	30	125	250	5.0	2.0	0.65	100	4.5	150	10	—	3A	BC556A
BC856B	PNP LOW NOISE	80	65	5.0	15	30	220	475	5.0	2.0	0.65	100	4.5	150	10	—	3B	BC556B
BC857	PNP LOW NOISE	50	45	5.0	15	30	75	800	5.0	2.0	0.65	100	4.5	150	10	—	—	BC557
BC857A	PNP LOW NOISE	50	45	5.0	15	30	125	250	5.0	2.0	0.65	100	4.5	150	10	—	3E	BC557A
BC857B	PNP LOW NOISE	50	45	5.0	15	30	220	475	5.0	2.0	0.65	100	4.5	150	10	—	3F	BC557B
BC857C	PNP LOW NOISE	50	45	5.0	15	30	420	800	5.0	2.0	0.65	100	4.5	150	10	—	3G	BC557C
BC858	PNP LOW NOISE	30	30	5.0	15	30	75	800	5.0	2.0	0.65	100	4.5	150	10	—	—	BC558
BC858A	PNP LOW NOISE	30	30	5.0	15	30	125	250	5.0	2.0	0.65	100	4.5	150	10	—	3J	BC558A

*BV_{CEs}



SMD Transistors SOT-23 Case 350mW

Proelectron Series—Cont'd

TYPE NO.	DESCRIPTION	BV _{CEO} (VOLTS)	BV _{CEO} (VOLTS)	BV _{CEO} (VOLTS)	I _{CEO} (mA)	V _{CE} (VOLTS)	h _{FE}	V _{CE} (VOLTS)	I _C (mA)	V _{CE} (SAT) (VOLTS)	I _C (mA)	C _{ob} (pF)	f _T (MHz)	NF (dB)	I _{OFF} (nA)	MARKING CODE	SIMILAR LEADED DEVICE	
		MIN	MIN	MIN	MAX	MIN	MIN	MAX	MAX	MAX	MAX	MAX	TYP	MAX	MAX			
BC858B	PNP LOW NOISE	30	30	5.0	15	30	220	475	5.0	2.0	0.65	100	4.5	150	10	—	3K	BC558B
BC858C	PNP LOW NOISE	30	30	5.0	15	30	420	800	5.0	2.0	0.65	100	4.5	150	10	—	3L	BC558C
BC859	PNP LOW NOISE	30	30	5.0	15	30	125	800	5.0	2.0	0.65	100	4.5	150	4.0	—	—	BC559
BC859A	PNP LOW NOISE	30	30	5.0	15	30	125	250	5.0	2.0	0.65	100	4.5	150	4.0	—	4A	BC559A
BC859B	PNP LOW NOISE	30	30	5.0	15	30	220	475	5.0	2.0	0.65	100	4.5	150	4.0	—	4B	BC559B
BC859C	PNP LOW NOISE	30	30	5.0	15	30	420	800	5.0	2.0	0.65	100	4.5	150	4.0	—	4C	BC559C
BC860	PNP LOW NOISE	50	45	5.0	15	30	125	800	5.0	2.0	0.65	100	4.5	150	3.0	—	—	BC560
BC860A	PNP LOW NOISE	50	45	5.0	15	30	125	250	5.0	2.0	0.65	100	4.5	150	3.0	—	4E	BC560A
BC860B	PNP LOW NOISE	50	45	5.0	15	30	230	475	5.0	2.0	0.65	100	4.5	150	3.0	—	4F	BC560B
BC860C	PNP LOW NOISE	50	45	5.0	15	30	420	800	5.0	2.0	0.65	100	4.5	150	3.0	—	4G	BC560C
BCF29	PNP LOW NOISE	32	32	5.0	100	32	120	260	5.0	2.0	0.30	10	4.5	150	4.0	—	C7	—
BCF30	PNP LOW NOISE	32	32	5.0	100	32	215	500	5.0	2.0	0.30	10	4.5	150	4.0	—	C8	—
BCF32	NPN LOW NOISE	32	32	5.0	100	32	200	450	5.0	2.0	0.25	10	2.5	300	4.0	—	D7	—
BCF33	NPN LOW NOISE	32	320	5.0	100	32	420	800	5.0	2.05	0.25	105	2.5	300	4.0	—	D8	—
BCF70	PNP LOW NOISE	50	45	5.0	100	20	215	500	5.0	2.0	0.30	10	4.5	150	4.0	—	H7	—
BCF81	NPN LOW NOISE	50	45	5.0	100	20	420	800	5.0	2.0	0.25	10	2.5	300	4.0	—	K9	—
BCV26	PNP DARLINGTON	40	30	10	100	30	20,000	—	5.0	100	1.0	100	3.5	220	—	—	FD	MPSA64
BCV27	NPN DARLINGTON	40	30	10	100	30	20,000	—	5.0	100	1.0	100	3.5	220	—	—	FF	MPSA14
BCV46	PNP DARLINGTON	80	60	10	100	30	10,000	—	5.0	100	1.0	100	3.5	220	—	—	FE	MPSA77
BCV47	NPN DARLINGTON	80	60	10	100	30	10,000	—	5.0	100	1.0	100	3.5	220	—	—	FG	MPSA27
BCV71	NPN LOW NOISE	80	60	5.0	100	20	110	220	5.0	2.0	0.25	10	2.5	300	10	—	K7	—
BCV72	NPN LOW NOISE	80	60	5.0	100	20	200	450	5.0	2.0	0.25	10	2.5	300	10	—	K8	—
BCW29	PNP LOW NOISE	32	32	5.0	100	32	120	260	5.0	2.0	0.30	10	4.5	150	10	—	C1	—
BCW30	PNP LOW NOISE	32	32	5.0	100	32	215	500	5.0	2.0	0.30	10	4.5	150	10	—	C2	—
BCW31	NPN LOW NOISE	32	32	5.0	100	32	110	220	5.0	2.0	0.25	10	2.5	300	10	—	D1	—
BCW32	NPN LOW NOISE	32	32	5.0	100	32	200	450	5.0	2.0	0.25	10	2.5	300	10	—	D2	—
BCW33	NPN LOW NOISE	32	32	5.0	100	32	420	800	5.0	2.0	0.25	10	2.5	300	10	—	D3	—
BCW60	NPN LOW NOISE	32*	32	5.0	20	32	130	630	5.0	2.0	0.55	50	2.5	250	6.0	—	—	—
BCW60A	NPN LOW NOISE	32*	32	5.0	20	32	120	220	5.0	2.0	0.55	50	2.5	250	6.0	—	AA	—
BCW60B	NPN LOW NOISE	32*	32	5.0	20*	32	180	310	5.0	2.0	0.55	50	2.5	250	6.0	—	AB	—
BCW60C	NPN LOW NOISE	32*	32	5.0	20*	32	250	460	5.0	2.0	0.55	50	2.5	250	6.0	—	AC	—
BCW60D	NPN LOW NOISE	32*	32	5.0	20*	32	380	630	5.0	2.0	0.55	50	2.5	250	6.0	—	AD	—
BCW61	PNP LOW NOISE	32*	32	5.0	20*	32	120	630	5.0	2.0	0.55	50	4.5	180	6.0	—	—	—
BCW61A	PNP LOW NOISE	32*	32	5.0	20*	32	120	220	5.0	2.0	0.55	50	4.5	180	6.0	—	BA	—
BCW61B	PNP LOW NOISE	32*	32	5.0	20*	32	180	310	5.0	2.0	0.55	50	4.5	180	6.0	—	BB	—
BCW61C	PNP LOW NOISE	32*	32	5.0	20*	32	250	460	5.0	2.0	0.55	50	4.5	180	6.0	—	BC	—
BCW61D	PNP LOW NOISE	32*	32	5.0	20*	32	380	630	5.0	2.0	0.55	50	4.5	180	6.0	—	BD	—
BCW65	NPN HIGH CURRENT	60	32	5.0	20	32	100	630	1.0	100	0.70	500	6.0	170	—	—	—	—
BCW65A	NPN HIGH CURRENT	60	32	5.0	20	32	100	250	1.0	100	0.70	500	6.0	170	—	—	EA	—
BCW65B	NPN HIGH CURRENT	60	32	5.0	20	32	160	400	1.0	100	0.70	500	6.0	170	—	—	EB	—
BCW65C	NPN HIGH CURRENT	60	32	5.0	20	32	250	630	1.0	100	0.70	500	6.0	170	—	—	EC	—
BCW66	NPN HIGH CURRENT	75	45	5.0	20	45	100	630	1.0	100	0.70	500	6.0	170	—	—	—	—
BCW66F	NPN HIGH CURRENT	75	45	5.0	20	45	100	250	1.0	100	0.70	500	6.0	170	—	—	EF	—
BCW66H	NPN HIGH CURRENT	75	45	5.0	20	45	160	400	1.0	100	0.70	500	6.0	170	—	—	EG	—
BCW66H	NPN HIGH CURRENT	75	45	5.0	20	45	250	630	1.0	100	0.70	500	6.0	170	—	—	EH	—
BCW67	PNP HIGH CURRENT	45	32	5.0	20	32	100	630	1.0	100	0.70	500	6.0	200	—	—	—	—
BCW67A	PNP HIGH CURRENT	45	32	5.0	20	32	100	250	1.0	100	0.70	500	6.0	200	—	—	DA	—
BCW67B	PNP HIGH CURRENT	45	32	5.0	20	32	160	400	1.0	100	0.70	500	6.0	200	—	—	DB	—
BCW67C	PNP HIGH CURRENT	45	32	5.0	20	32	250	630	1.0	100	0.70	500	6.0	200	—	—	DC	—
BCW68	PNP HIGH CURRENT	60	45	5.0	20	45	100	630	1.0	100	0.70	500	6.0	200	—	—	—	—
BCW68F	PNP HIGH CURRENT	60	45	5.0	20	45	100	250	1.0	100	0.70	500	6.0	200	—	—	DF	—
BCW68G	PNP HIGH CURRENT	60	45	5.0	20	45	160	400	1.0	100	0.70	500	6.0	200	—	—	DG	—
BCW68H	PNP HIGH CURRENT	60	45	5.0	20	45	250	630	1.0	100	0.70	500	6.0	200	—	—	DH	—
BCW69	PNP LOW NOISE	50	45	5.0	100	20	120	260	5.0	2.0	0.30	10	4.5	150	10	—	H1	—
BCW70	PNP LOW NOISE	50	45	5.0	100	20	215	500	5.0	2.0	0.30	10	4.5	150	10	—	H2	—
BCW71	NPN LOW NOISE	50	45	5.0	100	20	110	220	5.0	2.0	0.25	10	2.5	300	10	—	K1	—
BCW72	NPN LOW NOISE	50	45	5.0	100	20	200	450	5.0	2.0	0.25	10	2.5	300	10	—	K2	—
BCW81	NPN LOW NOISE	50	45	5.0	100	20	420	800	5.0	2.0	0.25	10	2.5	300	10	—	K3	—
BCW89	PNP LOW NOISE	80	60	5.0	100	20	120	260	5.0	2.0	0.30	10	4.5	150	10	—	H3	—
BCX17	PNP HIGH CURRENT	50*	45	5.0	100	20	100	600	1.0	100	0.62	500	8.0	100	—	—	T1	—
BCX18	PNP HIGH CURRENT	50*	25	5.0	100	20	100	600	1.0	100	0.62	500	8.0	100	—	—	T2	—
BCX19	NPN HIGH CURRENT	50*	45	5.0	100	20	100	600	1.0	100	0.62	500	5.0	200	—	—	U1	—
BCX20	NPN HIGH CURRENT	30*	25	5.0	100	20	100	600	1.0	100	0.62	500	5.0	200	—	—	U2	—
BCX70	NPN LOW NOISE	45*	45	5.0	20*	45	120	630	5.0	2.0	0.55	50	2.5	250	6.0	—	—	—
BCX70G	NPN LOW NOISE	45*	45	5.0	20*	45	120	220	5.0	2.0	0.55	50	2.5	250	6.0	—	AG	—
BCX70H	NPN LOW NOISE	45*	45	5.0	20*	45	180	310	5.0	2.0	0.55	50	2.5	250	6.0	—	AH	—
BCX70J	NPN LOW NOISE	45*	45	5.0	20*	45	250	460	5.0	2.0	0.55	50	2.5	250	6.0	—	AJ	—
BCX70K	NPN LOW NOISE	45*	45	5.0	20*	45	380	630	5.0	2.0	0.55	50	2.5	250	6.0	—	AK	—
BCX71	PNP LOW NOISE	45*	45	5.0	20*	45	120	630	5.0	2.0	0.55	50	4.5	180	6.0	—	—	—
BCX71G	PNP LOW NOISE	45*	45	5.0	20*	45	120	220	5.0	2.0	0.55	50	4.5	180	6.0	—	BG	—
BCX71H	PNP LOW NOISE	45*	45	5.0	20*	45	180	310	5.0	2.0	0.55	50	4.5	180	6.0	—	BH	—
BCX71J	PNP LOW NOISE	45*	45	5.0	20*	45	250	460	5.0	2.0	0.55	50	4.5	180	6.0	—	BJ	—
BCX71K	PNP LOW NOISE	45*	45	5.0	20*	45	380	630	5.0	2.0	0.55	50	4.5	180	6.0	—	BK	—
BSR13	NPN AMPL./SWITCH	60	40	5.0	30	50	100	300	10	150	1.60	500	8.0	250MIN	—	285	U7	2N2222A
BSR14	NPN AMPL./SWITCH	75	40	6.0	10	60	100	300	10	150	1.00	500	8.0	300MIN	—	285	U8	2N2222A
BSR15	PNP AMPL./SWITCH	60	40	5.0	20	50	100	300	10	150	1.60	500	8.0	200MIN	—	100	T7	2N2907A
BSR16	PNP AMPL./SWITCH	60	60	5.0	10	50	100	300	10	150	1.60	500	8.0	200MIN	—	100	T8	2N2907A
BSR17	NPN AMPL./SWITCH	60	40	6.0	50	30	50	150	1.0	10	0.30	50	4.0	250MIN	—	225	U9	—
BSR17A	NPN AMPL./SWITCH	60	40	6.0	50	30</												



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$\frac{2}{3}$ The Size of SOT-23 Case!

Small Signal Transistors

SOT-323 Case, 250mW

TYPE NO.	DESCRIPTION	BV _{CBO}	BV _{CEO}	BV _{EBO}	I _{CBO} @ V _{CB}		h _{FE}		@ V _{CE}		@ I _C		V _{CE(SAT)} @ I _C		C _{ob}	f _T	NF
		(V)	(V)	(V)	(nA)	(V)			(V)	(mA)	(V)	(mA)	(pF)	(MHz)	(dB)		
		MIN	MIN	MIN	MAX		MIN	MAX			MAX		MAX	MIN	MAX		
CMST2222A	NPN AMPL/SWITCH	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0		
CMST2907A	PNP AMPL/SWITCH	60	60	5.0	10	50	100	300	10	150	1.6	500	8.0	200			
CMST3904	NPN AMPL/SWITCH	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0		
CMST3906	PNP AMPL/SWITCH	40	40	5.0	50*	30	100	300	1.0	10	0.4	50	4.5	250	4.0		



Small Signal Transistors

SOT-89 Case, 1.2W

TYPE NO.	BV_{CBO}	BV_{CEO} BV_{CES}	BV_{EBO}	I_{CBO} @ V_{CB} I_{CES}	h_{FE}	@ V_{CE}	@ I_C	$V_{CE(SAT)}$ @ I_C	C_{ob}	f_T	NF	t_{off}	
	(V)	(V)	(V)	(nA)		(V)	(mA)	(V)	(mA)	(pF)	(MHz)	(dB)	(ns)
	MIN	MIN	MIN	MAX	MIN	MAX		MAX	MAX	MIN	MAX	MAX	MAX

General Purpose Amplifier/Switches

Devices are listed in order of descending breakdown voltage.

NPN

CXT2222A	75	40	6.0	10	60	100	300	10	150	1.0	500	8.0	300	4.0	285
CXT3904	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0	250

PNP

CXT2907A	60	60	5.0	10	50	100	300	10	150	1.6	500	8.0	200	-	100
CXT3906	60	40	6.0	50*	30	100	300	1.0	10	0.3	50	4.0	300	5.0	250

High Current

Devices are listed in order of descending breakdown voltage.

NPN

CXT3019	140	80	7.0	10	90	100	300	10	150	0.5	500	12	100	4.0	-
CBCX68	25	20	5.0	100	25	85	375	1.0	500	0.5	1,000	-	65	-	-

PNP

CXT4033	80	80	5.0	50	60	100	300	5.0	100	0.5	500	20	100	-	-
CBCX69	25	20	5.0	100	25	85	375	1.0	500	0.5	1,000	-	65	-	-

High Voltage

Devices are listed in order of descending breakdown voltage.

NPN

CXTA42	300	300	6.0	100	200	40	-	10	30	0.5	20	4.0	50	-	-
CXT5551	180	160	6.0	50	120	80	250	5.0	10	0.2	50	6.0	100	8.0	-

PNP

CXTA92	300	300	5.0	250	200	25	-	10	30	0.5	20	6.0	50	-	-
CXT5401	160	150	5.0	50	120	60	240	5.0	10	0.5	50	6.0	100	8.0	-

Darlington

Devices are listed in order of descending h_{FE} .

NPN

CXTA14	30	30*	10	100	30	20,000	-	5.0	100	1.5	100	-	125	-	-
CXTA27	60	60*	10	100	50	10,000	-	5.0	100	1.5	100	-	-	-	-

PNP

CXTA64	30	30*	10	100	30	20,000	-	5.0	100	1.5	100	-	100	-	-
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Shaded areas indicate Darlington.

SELECT
GUIDE



Power Transistors

SOT-223 Case

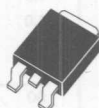


A Power Transistor Chip in a Small Signal Package!

TYPE NO.		DESCRIPTION	I_C	P_D	BV_{CBO}	BV_{CEO}	h_{FE}		αI_C	$V_{CE(SAT)} @ I_C$		f_T
NPN	PNP		(A) MAX	(W)	(V) MIN	(V) MIN	MIN	MAX	(A)	(V) MAX	(A)	(MHz) MIN
CZT31C	CZT32C	AMPL/SWITCH	3.0	2.0	100	100	10	100	3.0	1.2	3.0	3.0
CZT122	CZT127	DARLINGTON	5.0	2.0	100	100	1,000	---	3.0	4.0	5.0	4.0
CZT3055	CZT2955	AMPL/SWITCH	6.0	2.0	100	70	20	70	4.0	1.1	4.0	2.5
CZT5338		HIGH CURRENT SWITCH	5.0	2.0	100	100	30	120	2.0	1.2	5.0	30

Shaded areas indicate Darlington.

Note: SOT-223 also mounts directly on DPAK solder pads.



Power Transistors

DPAK Case



TYPE NO.		I_C	P_D	BV_{CBO}	BV_{CEO}	h_{FE}		αI_C	$V_{CE(SAT)} @ I_C$		f_T
NPN	PNP	(A)	(W)	* BV_{CEV} (V)	(V)	MIN	MAX	(A)	(V) MAX	(A)	*TYP (MHz) MIN

General Purpose Amplifier/Switches

Devices are listed in order of descending breakdown voltage.

CJD31C	CJD32C	3.0	15	100	100	10	50	3.0	1.2	3.0	3.0
CJD41C	CJD42C	6.0	20	100	100	15	75	3.0	1.5	6.0	3.0
CJD44H11	CJD45H11	8.0	20	80	80	40	---	4.0	1.0	8.0	50*
CJD3055	CJD2955	10	20	70	60	20	100	4.0	1.1	4.0	2.0
CJD200	CJD210	5.0	12.5	40	25	45	180	2.0	1.8	5.0	65

High Voltage

Devices are listed in order of descending breakdown voltage.

CJD13003		1.5	15	700*	400	5.0	25	1.0	3.0	1.5	4.0
CJD50		1.0	15	500	400	30	150	0.3	1.0	1.0	10
CJD340	CJD350	0.5	15	300	300	30	240	0.05	---	---	---
CJD47		1.0	15	350	250	30	150	0.3	1.0	1.0	10

Darlington

CJD112	CJD117	2.0	20	100	100	1,000	12,000	2.0	2.0	2.0	25
CJD122	CJD127	8.0	20	100	100	1,000	12,000	4.0	4.0	8.0	4.0

Shaded areas indicate Darlington.

SELECT
GUIDE

Switching Diodes

TYPE NO.	DESCRIPTION	V_{RRM}	I_F	$V_F @ I_F$		t_{rr}
		(V) MAX	(mA) MAX	(V) MAX	(mA)	(ns) MAX



SOD-80 Case

Devices are listed in order of ascending breakdown voltage.

CLL4150	HIGH CURRENT SWITCHING DIODE	50	300	1.0	200	4.0
CLL914	SWITCHING DIODE	100	200	1.0	10	4.0
CLL4448	SWITCHING DIODE	100	200	1.0	100	4.0
CLL2003	HIGH VOLTAGE SWITCHING DIODE	250	250	1.0	100	50



SOD-123 Case

(fits on SOD-80 mounting pads)

Devices are listed in order of ascending breakdown voltage.

CMHD4448	SINGLE SWITCHING DIODE	100	200	1.0	100	4.0
CMHD2003	SINGLE HIGH VOLTAGE SWITCHING DIODE	250	250	1.0	100	50



SOT-23 Case

Devices are listed in order of ascending breakdown voltage.

CMPD4150	SINGLE SWITCHING DIODE	50	300	1.0	200	4.0
CMPD2836	DUAL SWITCHING DIODE, COMMON ANODE	75	200	1.0	50	6.0
CMPD2838	DUAL SWITCHING DIODE, COMMON CATHODE	75	200	1.0	50	6.0
CMPD1001	SINGLE HIGH CURRENT DIODE	90	250	1.0	200	50
CMPD1001A	DUAL HIGH CURRENT DIODE, COMMON ANODE	90	250	1.0	200	50
CMPD1001S	DUAL HIGH CURRENT, IN SERIES	90	250	1.0	200	50
CMPD914	SINGLE SWITCHING DIODE	100	200	1.0	10	4.0
CMPD4448	SINGLE SWITCHING DIODE	100	200	1.0	100	4.0
CMPD7000	DUAL SWITCHING DIODE, IN SERIES	100	200	1.1	100	4.0
CMPD5001	SINGLE INDUCTIVE LOAD DIODE	120	400	1.0	200	50
CMPD5001S	DUAL INDUCTIVE LOAD DIODE, IN SERIES	120	400	1.0	200	50
CMPD2003	SINGLE HIGH VOLTAGE SWITCHING DIODE	250	200	1.0	100	50
CMPD2003C	DUAL SWITCHING DIODE, COMMON CATHODE	250	200	1.0	100	50
CMPD2003S	DUAL SWITCHING DIODE, IN SERIES	250	200	1.0	100	50
CMPD2004	SINGLE HIGH VOLTAGE SWITCHING DIODE	300	200	1.0	100	50
CMPD2004C	DUAL SWITCHING DIODE, COMMON CATHODE	300	200	1.0	100	50
CMPD2004S	DUAL HIGH VOLTAGE SWITCHING DIODE, IN SERIES	300	200	1.0	100	50



SOT-143 Case

Devices are listed in order of ascending breakdown voltage.

BAS56	ISOLATED, DUAL HIGH CURRENT DIODE	60	200	1.0	200	6.0
BAS28	ISOLATED, DUAL SWITCHING DIODE	85	250	1.0	50	6.0
BAW101	ISOLATED, DUAL SWITCHING DIODE, HIGH VOLTAGE	300	200	1.3	100	50
CMFD2004I	ISOLATED, DUAL SWITCHING DIODE, HIGH VOLTAGE	300	225	1.0	100	50



SUPER
mini

SOT-323 Case

Devices are listed in order of ascending breakdown voltage.

CMSD2836	DUAL SWITCHING DIODE, COMMON ANODE	75	200	1.0	50	6.0
CMSD2838	DUAL SWITCHING DIODE, COMMON CATHODE	75	200	1.0	50	6.0
CMSD7000	DUAL SWITCHING DIODE, IN SERIES	100	200	1.1	100	4.0
CMSD4448	SINGLE SWITCHING DIODE	100	200	1.0	100	4.0
CMSD2004S	DUAL SWITCHING DIODE, IN SERIES	300	200	1.0	100	50

Schottky Diodes

TYPE NO.	CONFIGURATION	V_{RRM}	I_F	$V_F @ I_F$		t_{rr}	CT
		(V)	I_O (mA)	(V)	(mA)	(ns)	*TYP (pF)
		MAX	MAX	MAX		MAX	MAX

SUPERTM
mini



SOD-323 Case

High Current

CMDSH-3	SINGLE, HIGH CURRENT	30	100*	0.55	50	5.0	7.0*
CMDSH2-3	SINGLE, HIGHER CURRENT	30	200*	0.55	200	-	15*



SOT-323 Case

High Current

CMSSH-3	SINGLE	30	100	0.45	15	5.0	7.0*
CMSSH-3A	DUAL, COMMON ANODE	30	100	0.45	15	5.0	7.0*
CMSSH-3C	DUAL, COMMON CATHODE	30	100	0.45	15	5.0	7.0*
CMSSH-3S	DUAL, IN SERIES	30	100	0.45	15	5.0	7.0*



SOT-23 Case

Low Current

CMPD6263	SINGLE	70	15	0.41	1.0	1.0	2.0
CMPD6263A	DUAL, COMMON ANODE	70	15	0.41	1.0	1.0	2.0
CMPD6263C	DUAL, COMMON CATHODE	70	15	0.41	1.0	1.0	2.0
CMPD6263S	DUAL, IN SERIES	70	15	0.41	1.0	1.0	2.0

High Current

CMPSH-3	SINGLE	30	100	0.45	15	5.0	7.0*
CMPSH-3A	DUAL, COMMON ANODE	30	100	0.45	15	5.0	7.0*
CMPSH-3C	DUAL, COMMON CATHODE	30	100	0.45	15	5.0	7.0*
CMPSH-3S	DUAL, IN SERIES	30	100	0.45	15	5.0	7.0*



SOT-143 Case

High Current

CMFSH-3i	DUAL, ISOLATED	30	100	0.45	15	5.0	7.0*
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SOD-123 Case (fits on SOD-80 mounting pads)

High Current

CMHSH-3	SINGLE	30	100	0.45	15	5.0	7.0*
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SELECT
GUIDE



Low Leakage Diodes

SOD-80 Case

TYPE NO.	V_{RRM} (V) MAX	I_O (mA) MAX	I_R (nA) MAX	@ V_{RWN} (V)	V_F (V) MAX	@ I_F (mA)	C_T (pF) MAX
CLL457A	70	200	25	60	1.0	100	6.0
CLL459A	200	200	25	175	1.0	100	8.0
CLL3595	150	150	1.0	125	1.0	200	8.0






Stabistor Diode

SOT-23 Case

TYPE NO.	V_F (V)		@ I_F (mA)	V_F (V)		@ I_F (mA)	V_F (V)		@ I_F (mA)	V_F (V)		@ I_F (mA)	V_F (V)		@ I_F (mA)
	MIN	MAX		MIN	MAX		MIN	MAX		MIN	MAX		MIN	MAX	
CBAS17	0.580	0.680	0.1	0.665	0.760	1.0	0.725	0.820	5.0	0.750	0.840	10	0.870	0.960	100


Zener Diodes

POWER	250mW							
CASE					 			
	SOD-323				SOT-323			
ZENER VOLTAGE	INDUSTRY STANDARD	@ I_{ZT} = (mA)	LOW LEVEL SHARP KNEE	@ I_{ZT} = (μ A)	INDUSTRY STANDARD	@ I_{ZT} = (mA)	DUAL, COMMON ANODE	@ I_{ZT} = (mA)
1.8								
2.0								
2.2								
2.4	CMDZ5221B*	20						
2.5	CMDZ5222B*	20						
2.7	CMDZ5223B*	20						
2.8	CMDZ5224B*	20						
3.0	CMDZ5225B*	20						
3.3	CMDZ5226B*	20						
3.6	CMDZ5227B*	20						
3.9	CMDZ5228B*	20						
4.3	CMDZ5229B*	20						
4.7	CMDZ5230B*	20						
5.1	CMDZ5231B*	20	CMDZ5L1	500				
5.6	CMDZ5232B*	20	CMDZ5L6	500				
6.0	CMDZ5233B*	20						
6.2	CMDZ5234B*	20	CMDZ6L2	500				
6.8	CMDZ5235B*	20	CMDZ6L8	500				
7.5	CMDZ5236B*	20	CMDZ7L5	500				
8.2	CMDZ5237B*	20	CMDZ8L2	500				
8.7	CMDZ5238B*	20						
9.1	CMDZ5239B*	20	CMDZ9L1	500				
10	CMDZ5240B*	20	CMDZ10L	500				
11	CMDZ5241B*	20	CMDZ11L	500				
12	CMDZ5242B*	20	CMDZ12L	500				
13	CMDZ5243B*	9.5	CMDZ13L	500				
14	CMDZ5244B*	9.0						
15	CMDZ5245B*	8.5	CMDZ15L	500				
16	CMDZ5246B*	7.8	CMDZ16L	500				
17	CMDZ5247B*	7.4						
18	CMDZ5248B*	7.0	CMDZ18L	500				
19	CMDZ5249B*	6.6						
20	CMDZ5250B*	6.2	CMDZ20L	500				
22	CMDZ5251B*	5.6	CMDZ22L	500				
24	CMDZ5252B*	5.2	CMDZ24L	500				
25	CMDZ5253B*	5.0						
27	CMDZ5254B*	4.6	CMDZ27L	500				
28	CMDZ5255B*	4.5						
30	CMDZ5256B*	4.2	CMDZ30L	500				
33	CMDZ5257B*	3.8	CMDZ33L	500				
36	CMDZ5258B*	3.4	CMDZ36L	500				
39	CMDZ5259B*	3.2						
43	CMDZ5260B*	3.0						
47	CMDZ5261B*	2.7						

* Available on special order; please consult factory.



SELECT
GUIDE

Zener Diodes (Continued)

POWER 350mW									
									
CASE	PREFERRED		SOT-23				PREFERRED		
ZENER VOLTAGE	INDUSTRY STANDARD	@ I_{ZT} = (mA)	LOW NOISE LOW LEVEL	@ I_{ZT} = (μ A)	LOW LEVEL	@ I_{ZT} = (μ A)	PROELECTRON SPECIFICATION	@ I_{ZT} = (mA)	DUAL, COMMON ANODE @ I_{ZT} = (mA)
1.8			CMPZ4614*	250	CMPZ4678*	50			
2.0			CMPZ4615*	250	CMPZ4679*	50			
2.2			CMPZ4616*	250	CMPZ4680*	50			
2.4	CMPZ5221B	20	CMPZ4617*	250	CMPZ4681*	50			
2.5	CMPZ5222B	20							
2.7	CMPZ5223B	20	CMPZ4618*	250	CMPZ4682*	50			
2.8	CMPZ5224B	20							
3.0	CMPZ5225B	20	CMPZ4619*	250	CMPZ4683*	50			
3.3	CMPZ5226B	20	CMPZ4620*	250	CMPZ4684*	50	BZX84C3V3	5.0	
3.6	CMPZ5227B	20	CMPZ4621*	250	CMPZ4685*	50	BZX84C3V6	5.0	CMPZDA3V6 5.0
3.9	CMPZ5228B	20	CMPZ4622*	250	CMPZ4686*	50	BZX84C3V9	5.0	CMPZDA3V9 5.0
4.3	CMPZ5229B	20	CMPZ4623*	250	CMPZ4687*	50	BZX84C4V3	5.0	CMPZDA4V3 5.0
4.7	CMPZ5230B	20	CMPZ4624*	250	CMPZ4688*	50	BZX84C4V7	5.0	CMPZDA4V7 5.0
5.1	CMPZ5231B	20	CMPZ4625	250	CMPZ4689	50	BZX84C5V1	5.0	CMPZDA5V1 5.0
5.6	CMPZ5232B	20	CMPZ4626	250	CMPZ4690	50	BZX84C5V6	5.0	CMPZDA5V6 5.0
6.0	CMPZ5233B	20							
6.2	CMPZ5234B	20	CMPZ4627	250	CMPZ4691	50	BZX84C6V2	5.0	CMPZDA6V2 5.0
6.8	CMPZ5235B	20	CMPZ4099*	250	CMPZ4692	50	BZX84C6V8	5.0	CMPZDA6V8 5.0
7.5	CMPZ5236B	20	CMPZ4100*	250	CMPZ4693*	50	BZX84C7V5	5.0	CMPZDA7V5 5.0
8.2	CMPZ5237B	20	CMPZ4101*	250	CMPZ4694	50	BZX84C8V2	5.0	CMPZDA8V2 5.0
8.7	CMPZ5238B	20	CMPZ4102*	250	CMPZ4695	50			
9.1	CMPZ5239B	20	CMPZ4103*	250	CMPZ4696	50	BZX84C9V1	5.0	CMPZDA9V1 5.0
10	CMPZ5240B	20	CMPZ4104*	250	CMPZ4697	50	BZX84C10	5.0	CMPZDA10V 5.0
11	CMPZ5241B	20	CMPZ4105*	250	CMPZ4698	50	BZX84C11	5.0	CMPZDA11V 5.0
12	CMPZ5242B	20	CMPZ4106*	250	CMPZ4699	50	BZX84C12	5.0	CMPZDA12V 5.0
13	CMPZ5243B	9.5	CMPZ4107*	250	CMPZ4700	50	BZX84C13	5.0	CMPZDA13V 5.0
14	CMPZ5244B	9.0	CMPZ4108*	250	CMPZ4701	50			
15	CMPZ5245B	8.5	CMPZ4109*	250	CMPZ4702	50	BZX84C15	5.0	CMPZDA15V 5.0
16	CMPZ5246B	7.8	CMPZ4110*	250	CMPZ4703	50	BZX84C16	5.0	CMPZDA16V 5.0
17	CMPZ5247B	7.4	CMPZ4111*	250	CMPZ4704	50	BZX84C18	5.0	CMPZDA18V 5.0
18	CMPZ5248B	7.0	CMPZ4112*	250	CMPZ4705	50			
19	CMPZ5249B	6.6	CMPZ4113*	250	CMPZ4706	50			
20	CMPZ5250B	6.2	CMPZ4114*	250	CMPZ4707	50	BZX84C20	5.0	CMPZDA20V 5.0
22	CMPZ5251B	5.6	CMPZ4115*	250	CMPZ4708	50	BZX84C22	5.0	CMPZDA22V 5.0
24	CMPZ5252B	5.2	CMPZ4116*	250	CMPZ4709	50	BZX84C24	5.0	CMPZDA24V 5.0
25	CMPZ5253B	5.0	CMPZ4117*	250	CMPZ4710	50			
27	CMPZ5254B	4.6	CMPZ4118*	250	CMPZ4711	50	BZX84C27	2.0	CMPZDA27V 2.0
28	CMPZ5255B	4.5	CMPZ4119*	250	CMPZ4712	50			
30	CMPZ5256B	4.2	CMPZ4120*	250	CMPZ4713	50	BZX84C30	2.0	CMPZDA30V 2.0
33	CMPZ5257B	3.8	CMPZ4121*	250	CMPZ4714	50	BZX84C33	2.0	CMPZDA33V 2.0
36	CMPZ5258B	3.4	CMPZ4122*	250	CMPZ4715	50			
39	CMPZ5259B	3.2	CMPZ4123*	250	CMPZ4716*	50			
43	CMPZ5260B	3.0	CMPZ4124*	250	CMPZ4717*	50			
47	CMPZ5261B	2.7							

* Available on special order; please consult factory.




Zener Diodes (Continued)

POWER		500mW					
CASE	ZENER VOLTAGE	Preliminary Data NEW  SOD-123		PREFERRED  SOD-80			
		INDUSTRY STANDARD	@ $I_Z =$ (mA)	INDUSTRY STANDARD	@ $I_Z =$ (mA)	LOW LEVEL LOW NOISE @ $I_Z =$ (μA)	LOW LEVEL @ $I_Z =$ (μA)
	1.8					CLL4614	250
	2.0					CLL4615	250
	2.2					CLL4616	250
	2.4	CMHZ5221B				CLL4617	250
	2.5	CMHZ5222B					
	2.7	CMHZ5223B				CLL4618	250
	2.8	CMHZ5224B					
	3.0	CMHZ5225B				CLL4619	250
	3.3	CMHZ5226B	20	CLL5226B	20	CLL4620	250
	3.6	CMHZ5227B	20	CLL5227B	20	CLL4621	250
	3.9	CMHZ5228B	20	CLL5228B	20	CLL4622	250
	4.3	CMHZ5229B	20	CLL5229B	20	CLL4623	250
	4.7	CMHZ5230B	20	CLL5230B	20	CLL4624	250
	5.1	CMHZ5231B	20	CLL5231B	20	CLL4625	250
	5.6	CMHZ5232B	20	CLL5232B	20	CLL4626	250
	6.0	CMHZ5233B	20	CLL5233B	20		
	6.2	CMHZ5234B	20	CLL5234B	20	CLL4627	250
	6.8	CMHZ5235B	20	CLL5235B	20	CLL4099	250
	7.5	CMHZ5236B	20	CLL5236B	20	CLL4100	250
	8.2	CMHZ5237B	20	CLL5237B	20	CLL4101	250
	8.7	CMHZ5238B	20	CLL5238B	20	CLL4102	250
	9.1	CMHZ5239B	20	CLL5239B	20	CLL4103	250
	10	CMHZ5240B	20	CLL5240B	20	CLL4104	250
	11	CMHZ5241B	20	CLL5241B	20	CLL4105	250
	12	CMHZ5242B	20	CLL5242B	20	CLL4106	250
	13	CMHZ5243B	9.5	CLL5243B	9.5	CLL4107	250
	14	CMHZ5244B	9.0	CLL5244B	9.0	CLL4108	250
	15	CMHZ5245B	8.5	CLL5245B	8.5	CLL4109	250
	16	CMHZ5246B	7.8	CLL5246B	7.8	CLL4110	250
	17	CMHZ5247B	7.4	CLL5247B	7.4	CLL4111	250
	18	CMHZ5248B	7.0	CLL5248B	7.0	CLL4112	250
	19	CMHZ5249B	6.6	CLL5249B	6.6	CLL4113	250
	20	CMHZ5250B	6.2	CLL5250B	6.2	CLL4114	250
	22	CMHZ5251B	5.6	CLL5251B	5.6	CLL4115	250
	24	CMHZ5252B	5.2	CLL5252B	5.2	CLL4116	250
	25	CMHZ5253B	5.0	CLL5253B	5.0	CLL4117	250
	27	CMHZ5254B	4.6	CLL5254B	4.6	CLL4118	250
	28	CMHZ5255B	4.5	CLL5255B	4.5	CLL4119	250
	30	CMHZ5256B	4.2	CLL5256B	4.2	CLL4120	250
	33	CMHZ5257B	3.8	CLL5257B	3.8	CLL4121	250
	36	CMHZ5258B				CLL4122	250
	39	CMHZ5259B				CLL4123	250
	43	CMHZ5260B				CLL4124	250
	47	CMHZ5261B				CLL4125	250
	51	CMHZ5262B					
	56	CMHZ5263B					
	60	CMHZ5264B					
	62	CMHZ5265B					

* Available on special order; please consult factory.

SELECT
GUIDE




Zener Diodes (Continued)

POWER	1.0W		1.5W		5.0 WATT	
						
	MELF		SMA		SMC	
ZENER VOLTAGE	GENERAL PURPOSE	@ I_{ZT} = (mA)	1.5W ZENER 200W TVS	@ I_{ZT} = (mA)	HIGH POWER	@ I_{ZT} = (mA)
3.6	CLL4729A	69				
3.9	CLL4730A	64				
4.3	CLL4731A	58				
4.7	CLL4732A	53				
5.1	CLL4733A	49				
5.6	CLL4734A	45				
6.2	CLL4735A	41				
6.8	CLL4736A	37	CMZ5921B*	55.1	CMZ5342B*	175
7.5	CLL4737A	34	CMZ5922B*	50.0	CMZ5343B*	175
8.2	CLL4738A	31	CMZ5923B*	45.7	CMZ5344B*	150
8.7					CMZ5345B*	150
9.1	CLL4739A	28	CMZ5924B*	41.2	CMZ5346B*	150
10	CLL4740A	25	CMZ5925B	37.5	CMZ5347B	125
11	CLL4741A	23	CMZ5926B	34.1	CMZ5348B	125
12	CLL4742A	21	CMZ5927B	31.2	CMZ5349B	100
13	CLL4743A	19	CMZ5928B	28.8	CMZ5350B	100
14					CMZ5351B	100
15	CLL4744A	17	CMZ5929B	25.0	CMZ5352B	75
16	CLL4745A	15.5	CMZ5930B	23.4	CMZ5353B	75
17					CMZ5354B	70
18	CLL4746A	14	CMZ5931B	20.8	CMZ5355B	65
19					CMZ5356B	65
20	CLL4747A	12.5	CMZ5932B	18.7	CMZ5357B	65
22	CLL4748A	11.5	CMZ5933B	17.0	CMZ5358B	50
24	CLL4749A	10.5	CMZ5934B	15.6	CMZ5359B	50
25					CMZ5360B	50
27	CLL4750A	9.5	CMZ5935B	13.9	CMZ5361B	50
28					CMZ5362B	50
30	CLL4751A	8.5	CMZ5936B	12.5	CMZ5363B	40
33	CLL4752A	7.5	CMZ5937B	11.4	CMZ5364B	40
36	CLL4753A	7.0	CMZ5938B	10.4	CMZ5365B	30
39	CLL4754A*	6.5	CMZ5939B	9.6	CMZ5366B	30
43	CLL4755A	6.0	CMZ5940B	8.7	CMZ5367B	30
47	CLL4756A	5.5	CMZ5941B	8.0	CMZ5368B	25
51	CLL4757A*	5.0	CMZ5942B	7.3	CMZ5369B	25
56	CLL4758A	4.5	CMZ5943B	6.7	CMZ5370B	20
60					CMZ5371B	20
62	CLL4759A	4.0	CMZ5944B	6.0	CMZ5372B	20
68	CLL4760A	3.7	CMZ5945B	5.5	CMZ5373B	20
75	CLL4761A*	3.3	CMZ5946B	5.0	CMZ5374B	20
82	CLL4762A	3.0	CMZ5947B	4.6	CMZ5375B	15
87					CMZ5376B	15
91	CLL4763A	2.8	CMZ5948B	4.1	CMZ5377B	15
100	CLL4764A	2.5	CMZ5949B	3.7	CMZ5378B	12
110			CMZ5950B	3.4	CMZ5379B	12
120			CMZ5951B	3.1	CMZ5380B	10
130			CMZ5952B	2.9	CMZ5381B	10
140					CMZ5382B	8.0
150			CMZ5953B	2.5	CMZ5383B	8.0
160			CMZ5954B	2.3	CMZ5384B	8.0
170					CMZ5385B	8.0
180			CMZ5955B	2.1	CMZ5386B	5.0
190					CMZ5387B	5.0
200			CMZ5956B	1.9	CMZ5388B	5.0

* Available on special order; please consult factory.

Transient Voltage Suppressors

Specified by
STAND-OFF VOLTAGE

POWER	600WATTS				1500 WATTS				3000 WATTS	
CASE	 SMB				 SMC				 *	
STAND-OFF VOLTAGE	UNI-POLAR	@I _T = (mA)	BI-POLAR	@I _T = (mA)	UNI-POLAR	@I _T = (mA)	BI-POLAR	@I _T = (mA)	UNI-POLAR*	@I _T = (mA)
5.0	1SMB5.0A	10	1SMB5.0CA	10	1SMC5.0A	10	1SMC5.0CA	10	3SMC5.0A	10
6.0	1SMB6.0A	10	1SMB6.0CA	10	1SMC6.0A	10	1SMC6.0CA	10	3SMC6.0A	10
6.5	1SMB6.5A	10	1SMB6.5CA	10	1SMC6.5A	10	1SMC6.5CA	10	3SMC6.5A	10
7.0	1SMB7.0A	10	1SMB7.0CA	10	1SMC7.0A	10	1SMC7.0CA	10	3SMC7.0A	10
7.5	1SMB7.5A	1.0	1SMB7.5CA	1.0	1SMC7.5A	1.0	1SMC7.5CA	1.0	3SMC7.5A	1.0
8.0	1SMB8.0A	1.0	1SMB8.0CA	1.0	1SMC8.0A	1.0	1SMC8.0CA	1.0	3SMC8.0A	1.0
8.5	1SMB8.5A	1.0	1SMB8.5CA	1.0	1SMC8.5A	1.0	1SMC8.5CA	1.0	3SMC8.5A	1.0
9.0	1SMB9.0A	1.0	1SMB9.0CA	1.0	1SMC9.0A	1.0	1SMC9.0CA	1.0	3SMC9.0A	1.0
10	1SMB10A	1.0	1SMB10CA	1.0	1SMC10A	1.0	1SMC10CA	1.0	3SMC10A	1.0
11	1SMB11A	1.0	1SMB11CA	1.0	1SMC11A	1.0	1SMC11CA	1.0	3SMC11A	1.0
12	1SMB12A	1.0	1SMB12CA	1.0	1SMC12A	1.0	1SMC12CA	1.0	3SMC12A	1.0
13	1SMB13A	1.0	1SMB13CA	1.0	1SMC13A	1.0	1SMC13CA	1.0	3SMC13A	1.0
14	1SMB14A	1.0	1SMB14CA	1.0	1SMC14A	1.0	1SMC14CA	1.0	3SMC14A	1.0
15	1SMB15A	1.0	1SMB15CA	1.0	1SMC15A	1.0	1SMC15CA	1.0	3SMC15A	1.0
16	1SMB16A	1.0	1SMB16CA	1.0	1SMC16A	1.0	1SMC16CA	1.0	3SMC16A	1.0
17	1SMB17A	1.0	1SMB17CA	1.0	1SMC17A	1.0	1SMC17CA	1.0	3SMC17A	1.0
18	1SMB18A	1.0	1SMB18CA	1.0	1SMC18A	1.0	1SMC18CA	1.0	3SMC18A	1.0
20	1SMB20A	1.0	1SMB20CA	1.0	1SMC20A	1.0	1SMC20CA	1.0	3SMC20A	1.0
22	1SMB22A	1.0	1SMB22CA	1.0	1SMC22A	1.0	1SMC22CA	1.0	3SMC22A	1.0
24	1SMB24A	1.0	1SMB24CA	1.0	1SMC24A	1.0	1SMC24CA	1.0	3SMC24A	1.0
26	1SMB26A	1.0	1SMB26CA	1.0	1SMC26A	1.0	1SMC26CA	1.0	3SMC26A	1.0
28	1SMB28A	1.0	1SMB28CA	1.0	1SMC28A	1.0	1SMC28CA	1.0	3SMC28A	1.0
30	1SMB30A	1.0	1SMB30CA	1.0	1SMC30A	1.0	1SMC30CA	1.0	3SMC30A	1.0
33	1SMB33A	1.0	1SMB33CA	1.0	1SMC33A	1.0	1SMC33CA	1.0	3SMC33A	1.0
36	1SMB36A	1.0	1SMB36CA	1.0	1SMC36A	1.0	1SMC36CA	1.0	3SMC36A	1.0
40	1SMB40A	1.0	1SMB40CA	1.0	1SMC40A	1.0	1SMC40CA	1.0	3SMC40A	1.0
43	1SMB43A	1.0	1SMB43CA	1.0	1SMC43A	1.0	1SMC43CA	1.0	3SMC43A	1.0
45	1SMB45A	1.0	1SMB45CA	1.0	1SMC45A	1.0	1SMC45CA	1.0	3SMC45A	1.0
48	1SMB48A	1.0	1SMB48CA	1.0	1SMC48A	1.0	1SMC48CA	1.0	3SMC48A	1.0
51	1SMB51A	1.0	1SMB51CA	1.0	1SMC51A	1.0	1SMC51CA	1.0	3SMC51A	1.0
54	1SMB54A	1.0	1SMB54CA	1.0	1SMC54A	1.0	1SMC54CA	1.0	3SMC54A	1.0
58	1SMB58A	1.0	1SMB58CA	1.0	1SMC58A	1.0	1SMC58CA	1.0	3SMC58A	1.0
60	1SMB60A	1.0	1SMB60CA	1.0	1SMC60A	1.0	1SMC60CA	1.0	3SMC60A	1.0
64	1SMB64A	1.0	1SMB64CA	1.0	1SMC64A	1.0	1SMC64CA	1.0	3SMC64A	1.0
70	1SMB70A	1.0	1SMB70CA	1.0	1SMC70A	1.0	1SMC70CA	1.0	3SMC70A	1.0
75	1SMB75A	1.0	1SMB75CA	1.0	1SMC75A	1.0	1SMC75CA	1.0	3SMC75A	1.0
78	1SMB78A	1.0	1SMB78CA	1.0	1SMC78A	1.0	1SMC78CA	1.0	3SMC78A	1.0
85	1SMB85A	1.0	1SMB85CA	1.0	1SMC85A	1.0	1SMC85CA	1.0	3SMC85A	1.0
90	1SMB90A	1.0	1SMB90CA	1.0	1SMC90A	1.0	1SMC90CA	1.0	3SMC90A	1.0
100	1SMB100A	1.0	1SMB100CA	1.0	1SMC100A	1.0	1SMC100CA	1.0	3SMC100A	1.0
110	1SMB110A	1.0	1SMB110CA	1.0	1SMC110A	1.0	1SMC110CA	1.0	3SMC110A	1.0
120	1SMB120A	1.0	1SMB120CA	1.0	1SMC120A	1.0	1SMC120CA	1.0	3SMC120A	1.0
130	1SMB130A	1.0	1SMB130CA	1.0	1SMC130A	1.0	1SMC130CA	1.0	3SMC130A	1.0
150	1SMB150A	1.0	1SMB150CA	1.0	1SMC150A	1.0	1SMC150CA	1.0	3SMC150A	1.0
160	1SMB160A	1.0	1SMB160CA	1.0	1SMC160A	1.0	1SMC160CA	1.0	3SMC160A	1.0
170	1SMB170A	1.0	1SMB170CA	1.0	1SMC170A	1.0	1SMC170CA	1.0	3SMC170A	1.0



* 3000 Watt 3SMC5.0CA Bi-polar series in SMC case also available. Please consult factory.

SELECT
GUIDE

Transient Voltage Suppressors

Specified by

BREAKDOWN
VOLTAGE

POWER	600WATTS				1500 WATTS			
CASE	 SMB				 SMC			
BREAKDOWN VOLTAGE	UNI-POLAR	@I _T = (mA)	BI-POLAR	@I _T = (mA)	UNI-POLAR	@I _T = (mA)	BI-POLAR	@I _T = (mA)
6.8	P6SMB6.8A	10	P6SMB6.8CA	10	1.5SMC6.8A	10	1.5SMC6.8CA	10
7.5	P6SMB7.5A	10	P6SMB7.5CA	10	1.5SMC7.5A	10	1.5SMC7.5CA	10
8.2	P6SMB8.2A	10	P6SMB8.2CA	10	1.5SMC8.2A	10	1.5SMC8.2CA	10
9.1	P6SMB9.1A	1.0	P6SMB9.1CA	10	1.5SMC9.1A	10	1.5SMC9.1CA	10
10	P6SMB10A	1.0	P6SMB10CA	1.0	1.5SMC10A	1.0	1.5SMC10CA	1.0
11	P6SMB11A	1.0	P6SMB11CA	1.0	1.5SMC11A	1.0	1.5SMC11CA	1.0
12	P6SMB12A	1.0	P6SMB12CA	1.0	1.5SMC12A	1.0	1.5SMC12CA	1.0
13	P6SMB13A	1.0	P6SMB13CA	1.0	1.5SMC13A	1.0	1.5SMC13CA	1.0
15	P6SMB15A	1.0	P6SMB15CA	1.0	1.5SMC15A	1.0	1.5SMC15CA	1.0
16	P6SMB16A	1.0	P6SMB16CA	1.0	1.5SMC16A	1.0	1.5SMC16CA	1.0
18	P6SMB18A	1.0	P6SMB18CA	1.0	1.5SMC18A	1.0	1.5SMC18CA	1.0
20	P6SMB20A	1.0	P6SMB20CA	1.0	1.5SMC20A	1.0	1.5SMC20CA	1.0
22	P6SMB22A	1.0	P6SMB22CA	1.0	1.5SMC22A	1.0	1.5SMC22CA	1.0
24	P6SMB24A	1.0	P6SMB24CA	1.0	1.5SMC24A	1.0	1.5SMC24CA	1.0
27	P6SMB27A	1.0	P6SMB27CA	1.0	1.5SMC27A	1.0	1.5SMC27CA	1.0
30	P6SMB30A	1.0	P6SMB30CA	1.0	1.5SMC30A	1.0	1.5SMC30CA	1.0
33	P6SMB33A	1.0	P6SMB33CA	1.0	1.5SMC33A	1.0	1.5SMC33CA	1.0
36	P6SMB36A	1.0	P6SMB36CA	1.0	1.5SMC36A	1.0	1.5SMC36CA	1.0
39	P6SMB39A	1.0	P6SMB39CA	1.0	1.5SMC39A	1.0	1.5SMC39CA	1.0
43	P6SMB43A	1.0	P6SMB43CA	1.0	1.5SMC43A	1.0	1.5SMC43CA	1.0
47	P6SMB47A	1.0	P6SMB47CA	1.0	1.5SMC47A	1.0	1.5SMC47CA	1.0
51	P6SMB51A	1.0	P6SMB51CA	1.0	1.5SMC51A	1.0	1.5SMC51CA	1.0
56	P6SMB56A	1.0	P6SMB56CA	1.0	1.5SMC56A	1.0	1.5SMC56CA	1.0
62	P6SMB62A	1.0	P6SMB62CA	1.0	1.5SMC62A	1.0	1.5SMC62CA	1.0
68	P6SMB68A	1.0	P6SMB68CA	1.0	1.5SMC68A	1.0	1.5SMC68CA	1.0
75	P6SMB75A	1.0	P6SMB75CA	1.0	1.5SMC75A	1.0	1.5SMC75CA	1.0
82	P6SMB82A	1.0	P6SMB82CA	1.0	1.5SMC82A	1.0	1.5SMC82CA	1.0
91	P6SMB91A	1.0	P6SMB91CA	1.0	1.5SMC91A	1.0	1.5SMC91CA	1.0
100	P6SMB100A	1.0	P6SMB100CA	1.0	1.5SMC100A	1.0	1.5SMC100CA	1.0
110	P6SMB110A	1.0	P6SMB110CA	1.0	1.5SMC110A	1.0	1.5SMC110CA	1.0
120	P6SMB120A	1.0	P6SMB120CA	1.0	1.5SMC120A	1.0	1.5SMC120CA	1.0
130	P6SMB130A	1.0	P6SMB130CA	1.0	1.5SMC130A	1.0	1.5SMC130CA	1.0
150	P6SMB150A	1.0	P6SMB150CA	1.0	1.5SMC150A	1.0	1.5SMC150CA	1.0
160	P6SMB160A	1.0	P6SMB160CA	1.0	1.5SMC160A	1.0	1.5SMC160CA	1.0
170	P6SMB170A	1.0	P6SMB170CA	1.0	1.5SMC170A	1.0	1.5SMC170CA	1.0
180	P6SMB180A	1.0	P6SMB180CA	1.0	1.5SMC180A	1.0	1.5SMC180CA	1.0
200	P6SMB200A	1.0	P6SMB200CA	1.0	1.5SMC200A	1.0	1.5SMC200CA	1.0



Current Limiting Diodes

SOD-80 Case

MAXIMUM RATINGS ($T_L = 75^\circ\text{C}$)

Peak Operating Voltage

Power Dissipation

Operation and Storage

Junction Temperature

SYMBOL

POV

P_D

T_J, T_{stg}

100

800

-65 to +200

UNITS

V

mW

$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

TYPE NO.	REGULATOR CURRENT (1) $I_P @ V_T = 25\text{V}$ (mA)			DYNAMIC IMPEDANCE $Z_T @ V_T = 25\text{V}$ ($\text{M}\Omega$) MIN	KNEE IMPEDANCE $Z_K @ V_K = 6.0\text{V}$ ($\text{M}\Omega$) MIN	LIMITING VOLTAGE $V_L @ I_L = 0.8 I_P \text{ MIN}$ (V) MAX
	MIN	NOM	MAX			
CCLM0035	0.010	0.035	0.060	8.0	4.00	0.4
CCLM0130	0.050	0.130	0.210	6.0	2.00	0.6
CCLM0300	0.200	0.310	0.420	4.0	1.00	0.8
CCLM0500	0.400	0.515	0.630	2.0	0.50	1.1
CCLM0750	0.600	0.760	0.920	1.0	0.20	1.4
CCLM1000	0.880	1.100	1.320	0.65	0.10	1.7
CCLM1500	1.280	1.500	1.720	0.45	0.07	2.0
CCLM2000	1.680	2.000	2.320	0.35	0.05	2.3
CCLM2700	2.280	2.690	3.100	0.30	0.03	2.7
CCLM3500	3.000	3.550	4.100	0.25	0.02	3.2
CCLM4500	3.900	4.500	5.100	0.20	0.01	3.7
CCLM5750	5.000	5.750	6.500	0.05	0.005	4.5

* The Temperature Coefficient is measured between the following points: $+25^\circ\text{C}$, $+50^\circ\text{C}$

(1) TESTED USING THE PULSED METHOD. $\left(\text{PULSE WIDTH (ms)} = \frac{27.5}{I_P \text{ NOM (mA)}} \right)$

SELECT
GUIDE



High Current, Current Limiting Diodes SOD-80 Case

MAXIMUM RATINGS ($T_L = 75^\circ\text{C}$)

Peak Operating Voltage

Power Dissipation

Operation and Storage

Junction Temperature

SYMBOL

POV

P_D

T_J, T_{stg}

50

800

-65 to + 200

UNITS

V

mW

$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)





TYPE NO.	REGULATOR CURRENT (1) $I_P@V_T=25V$ (mA)			DYNAMIC IMPEDANCE $Z_T@V_T=25V$ (MΩ)	KNEE IMPEDANCE $Z_K@V_K=6.0V$ (KΩ)	LIMITING VOLTAGE $V_L@I_L=0.8 I_PMIN$ (V)
	MIN	NOM	MAX	MIN	MIN	MAX
CCLHM080	6.56	8.2	9.84	0.32	15	3.1
CCLHM100	8.00	10	12	0.17	6.0	3.5
CCLHM120	9.60	12	14.4	0.08	3.0	3.8
CCLHM150	12	15	18	0.03	2.0	4.3

* The Temperature Coefficient is measured between the following points: $+25^\circ\text{C}$, $+50^\circ\text{C}$

(1) TESTED USING THE PULSED METHOD. $\left(\text{PULSE WIDTH (ms)} = \frac{27.5}{I_P \text{ NOM (mA)}} \right)$

Rectifiers, General Purpose

0.5 to 3.0 Amperes
200 to 1000 Volts

I_O (AMPS)	0.5	1.0		2.0	3.0
@ T_A (°C)	25	25	25	25	25
I_{FSM} (AMPS)	10	30	30	60	200
CASE	 NEW SOD-80	 SMA	 SMB	 SMC	
V_{RRM} (VOLTS)					
200	CLLRH-02	CMR1-02M	CMR1-02	CMR2-02	CMR3-02
400	CLLRH-04	CMR1-04M	CMR1-04	CMR2-04	CMR3-04
600	CLLRH-06	CMR1-06M	CMR1-06	CMR2-06	CMR3-06
1000		CMR1-10M	CMR1-10	CMR2-10	CMR3-10

V_F MAX @ $I_F = I_O$	1.1V	1.1V	1.1V	1.1V	1.2V
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I_R MAX @ V_{RRM}	2.0μA	5.0μA	10μA	5.0μA	5.0μA
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SELECT
GUIDE

Rectifiers, Fast Recovery

1.0 Ampere

200 to 1000 Volts

I_O (AMPS)	1.0
@ T_A (°C)	25
I_{FSM} (AMPS)	30
	
CASE	SMA
V_{RRM} (VOLTS)	
200	CMR1F-02M
400	CMR1F-04M
600	CMR1F-06M
1000	CMR1F-10M







V_F MAX @ $I_F = I_O$	1.3V
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I_R MAX @ V_{RRM}	5.0μA
t_{rr} (200V)	150ns
t_{rr} (400V)	150ns
t_{rr} (600V)	250ns
t_{rr} (1000V)	500ns

Rectifiers, Ultra Fast

1.0 to 3.0 Amperes

100 to 1000 Volts

I _O (AMPS)	1.0		2.0	3.0	
@ T _A (°C)	25	25	25	25	25
I _{FSM} (AMPS)	30	30	50	150	75
CASE	 NEW SMA	 SMB	 SMC	 DPAK	SINGLE
V _{RRM} (VOLTS)					
100	CMR1U-01M	CMR1U-01	CMR2U-01	CMR3U-01	
200	CMR1U-02M	CMR1U-02	CMR2U-02	CMR3U-02	CUD3-02
400	CMR1U-04M	CMR1U-04	CMR2U-04	CMR3U-04	
600	CMR1U-06M	CMR1U-06	CMR2U-06	CMR3U-06	
1000	CMR1U-10M	 CMR1U-10		CMR3U-10	



V _F MAX @ I _F = I _O					
100V	1.0V	1.0V	1.0V	1.0V	
200V	1.0V	1.0V	1.0V	1.0V	1.25V @ 12A
400V	1.25V	1.25V	1.25V	1.25V	
600V	1.4V	1.4V	1.4V	1.4V	
1000V	1.7V	1.7V		1.7V	

I _R MAX @ V _{RRM}	5.0μA	5.0μA	10μA	5.0μA	20μA
t _{rr} (100V thru 200V)	35ns	50ns	50ns	50ns	35ns
t _{rr} (400V)	50ns	50ns	50ns	50ns	
t _{rr} (600V)	75ns	100ns	50ns	100ns	
t _{rr} (1000V)	100ns	100ns		100ns	

SELECT
GUIDE

Rectifiers, Ultra Fast

6.0 to 16 Amperes
100 to 800 Volts

I_O (AMPS)	6.0	8.0	16
@ T_A (°C)	25	25	25
I_{FSM} (AMPS)	75		
CASE	 DPAK	 D ² PAK	
	DUAL	SINGLE	DUAL
V_{RRM} (VOLTS)			
200	CUD6-02C	CUDD8-02	CUDD16-02C
400		CUDD8-04	CUDD16-04C
600			
800		CUDD8-08	CUDD16-08C

V_F MAX @ $I_F = I_O$			
100V			
200V	1.25 @ 10A	0.975V	0.975V @ 8.0A
400V		1.3V	1.3V @ 8.0A
600V			
800V		1.5V	1.5V @ 8.0A

I_R MAX @ V_{RRM}	20 μ A	5.0 μ A*	5.0 μ A*
t_{rr} (100V thru 200V)	35ns	25ns	25ns
t_{rr} (400V)		25ns	25ns
t_{rr} (600V)			
t_{rr} (800V)		50ns	50ns


*20 Volt device

Rectifiers, Super Fast

1.0 Ampere

100 and 200 Volts



I_O (AMPS)	1.0
@ T_A (°C)	25
I_{FSM} (AMPS)	30
CASE	 SMB
V_{RRM} (VOLTS)	
100	CMR1S-01
200	CMR1S-02

V_F MAX @ $I_F = I_O$	0.95V
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I_R MAX @ V_{RRM}	5.0 μ A
$t_{rr}(100V)$	35ns
$t_{rr}(200V)$	35ns

SELECT
GUIDE

Rectifiers, Schottky

1.0 to 2.0 Amperes

20 to 100 Volts






I _O (AMPS)	1.0				2.0			
@ T _A (°C)	25	25	25	25	25	25	25	25
I _{FSM} (AMPS)	30	30	30	10	50	30	50	10
CASE	 SMA	 SMA	 SMB	 SOT-89	 SMA	 SMB	 SOT-223	
V _{RRM} (VOLTS)								
20	CMSH1-20M	CMSH1-20ML	CMSH1-20		CMSH2-20M	CMSH2-20	CMSH2-20L	
40	CMSH1-40M	CMSH1-40ML	CMSH1-40	CXSH-4	CMSH2-40M	CMSH2-40	CMSH2-40L	CZSH-4
60	CMSH1-60M		CMSH1-60		CMSH2-60M	CMSH2-60		
100	 CMSH1-100M		CMSH1-100		 CMSH2-100M	CMSH2-100		

V _F MAX @ I _F = I _O								
20V	0.50V	0.38V	0.55V		0.55V	0.50V	0.38V	
40V	0.50V	0.40V	0.55V	0.55V	0.55V	0.50V	0.40V	0.55V
60V	0.70V		0.70V		0.70V	0.70V		
100V	0.85V		0.85V		0.85V	0.85V		

I _R MAX @ V _{RRM}	500μA	500μA	1000μA	500μA	500μA	500μA	500μA	100μA
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Rectifiers, Schottky

3.0 to 5.0 Amperes
20 to 100 Volts

I _O (AMPS)	3.0				5.0	
@ T _A (°C)	25	25	25	120*	25	120*
I _{FSM} (AMPS)	80	150	100	75	125	80
CASE	HIGH DENSITY SCHOTTKY 	LOW V _F 			HIGH DENSITY SCHOTTKY 	LOW V _F 
	SMB	SMC		DPAK	SMC	DPAK
V _{RRM} (VOLTS)	NEW		NEW		NEW	NEW
20	CMSH3-20M	CMSH3-20	CMSH3-20L		CMSH5-20	
25						CSHD5-25L
40	CMSH3-40M	CMSH3-40	CMSH3-40L	CSHD3-40	CMSH5-40	
60	CMSH3-60M	CMSH3-60		CSHD3-60	CMSH5-60	
100	CMSH3-100M	CMSH3-100		CSHD3-100	CMSH5-100	

V _F MAX @ I _F = I _O						
20V	0.55V	0.50V	0.38V		0.55V	
25V						0.35V
40V	0.55V	0.50V	0.40V	0.60V	0.55V	
60V	0.75V	0.70V		0.70V	0.75V	
100V	0.85V	0.80V		0.80V	0.85V	

I _R MAX @ V _{RRM}	500μA	500μA	500μA	30μA**	300μA	500μA
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*T_C

** 60V & 100V Devices

SELECT
GUIDE

Rectifiers, Schottky

6.0 to 16 Amperes
20 to 100 Volts



I_O (AMPS)	6.0	8.0	10	16
@ T_C ($^{\circ}C$)	120	100	120	90
I_{FSM} (AMPS)	75	150	200	150
CASE	 DPAK	 D ² PAK	 DPAK	 D ² PAK
	DUAL	SINGLE	SINGLE	DUAL
V_{RRM} (VOLTS)				
20				
40	CSHD6-40C	CSHDD8-40		CSHDD16-40C
45			CSHD10-45L	
60	CSHD6-60C	CSHDD8-60		CSHDD16-60C
100	 CSHD6-100C	CSHDD8-100		CSHDD16-100C

V_F MAX @ $I_F = I_O$				
20V				
40V	0.80V	0.57V		0.72V
45V			0.55V	
60V	0.85V	0.65V		0.85V
100V	1.05V	0.75V		1.00V

I_R MAX @ V_{RRM}	30 μ A*	100 μ A	100 μ A	100 μ A
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* 60 & 100 Volt devices

Bridge Rectifiers Single Phase, Full Wave 0.5 to 1.0 Ampere 100 to 1000 Volts

IO (AMPS)	0.5		1.0	
@ TA (°C)	25	50	50	25
IFSM (AMPS)	30	50	50	50
CASE				
VRRM (VOLTS)	GENERAL PURPOSE	GENERAL PURPOSE	FAST RECOVERY	ULTRA FAST RECOVERY
100				CBR1U-D010S
200	CBRHD-02	CBR1-D020S	CBR1F-D020S	CBR1U-D020S
400	CBRHD-04	CBR1-D040S	CBR1F-D040S	
600	CBRHD-06	CBR1-D060S	CBR1F-D060S	
1000	CBRHD-10*	CBR1-D100S	CBR1F-D100S	


VF MAX @ IF	1.0V @ 0.4A	1.1V @ 1.0A	1.3V @ 1.0A	1.05V @ 1.0A
IR MAX @ VRRM	5.0μA	10μA	10μA	10μA
trr(100V thru 400V)	—	—	200ns	50ns
trr(600V)	—	—	300ns	
trr(1000V)	—	—	500ns	

* Available on special order only, consult factory.

SELECT
GUIDE

SCRs (Silicon Controlled Rectifiers)


0.8 Ampere RMS 400 Volts

I_T (AMPS)	0.8
@ T_C (°C)	67
I_{TSM} (AMPS)	10
	
CASE	SOT-23
V_{RRM} (VOLTS)	
400	CMPS5064

I_{GT}	200 μ A
V_{GT}	0.8V
I_H	5.0mA

Triacs

2.0 Amperes 400 to 800 Volts

I_T (AMPS)	2.0	
@ T_C (°C)	80	80
I_{TSM} (AMPS)	10	10
		
CASE	SOT-89	
V_{RRM} (VOLTS)		
400	CQ89D	CQ89DS
600	CQ89M	CQ89MS
800	CQ89N	CQ89NS

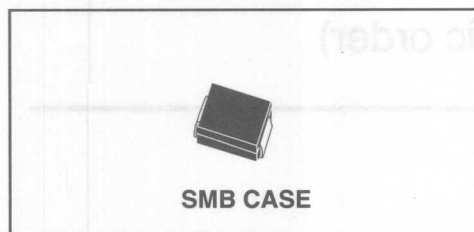
I_{GT} QI	25mA	5.0mA
I_{GT} QII	25mA	5.0mA
I_{GT} QIII	25mA	5.0mA
I_{GT} QIV	25mA	5.0mA
V_{GT} QI - QIV	2.0V	2.0V
I_H	25mA	5.0mA

(in alphanumeric order)

NEW

**1SMB5.0A
THRU
1SMB170A**

**UNI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
600 WATTS, 5.0 THRU 170 VOLTS**



Specified by

STAND-OFF VOLTAGE

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

SYMBOL		UNITS
P_{DM}	600	W
I_{FSM}	100	A
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @ V_{RWM}	MAXIMUM CLAMPING VOLTAGE @ I_{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE
		V_{BR}		$@I_T$				
	V_{RWM}	VOLTS			I_R	V_C	I_{PPM}	
	VOLTS	MIN	MAX	mA	μA	VOLTS	A	
1SMB5.0A	5.0	6.40	7.25	10	800	9.2	65.2	CKE
1SMB6.0A	6.0	6.67	7.67	10	800	10.3	58.3	CKG
1SMB6.5A	6.5	7.22	8.30	10	500	11.2	53.6	CKK
1SMB7.0A	7.0	7.78	8.95	10	200	12.0	50.0	CKM
1SMB7.5A	7.5	8.33	9.58	1.0	100	12.9	46.5	CKP
1SMB8.0A	8.0	8.89	10.23	1.0	50	13.6	44.1	CKR
1SMB8.5A	8.5	9.44	10.82	1.0	10	14.4	41.7	CKT
1SMB9.0A	9.0	10.0	11.5	1.0	5.0	15.4	39.0	CKV
1SMB10A	10	11.1	12.8	1.0	5.0	17.0	35.3	CKX
1SMB11A	11	12.2	14.0	1.0	5.0	18.2	33.0	CKZ
1SMB12A	12	13.3	15.3	1.0	5.0	19.9	30.2	CLE
1SMB13A	13	14.4	16.5	1.0	5.0	21.5	27.9	CLG

CentralTM

Semiconductor Corp.

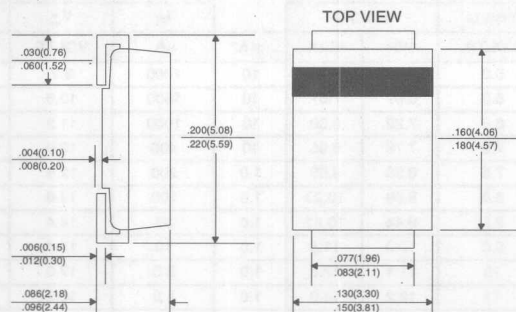
DESCRIPTION

The CENTRAL SEMICONDUCTOR 1SMB5.0A Series types are Surface Mount Uni-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Bi-directional devices, please refer to the 1SMB5.0CA Series data sheet.

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM CLAMPING VOLTAGE @I _{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE
		V _{BR}		@I _T				
		VOLTS						
	V _{RWM}	MIN	MAX	mA	I _R μA	V _C VOLTS	I _{PPM} A	
1SMB14A	14	15.6	17.9	1.0	5.0	23.2	25.8	CLK
1SMB15A	15	16.7	19.2	1.0	5.0	24.4	24.0	CLM
1SMB16A	16	17.8	20.5	1.0	5.0	26.0	23.1	CLP
1SMB17A	17	18.9	21.7	1.0	5.0	27.6	21.7	CLR
1SMB18A	18	20.0	23.3	1.0	5.0	29.2	20.5	CLT
1SMB20A	20	22.2	25.5	1.0	5.0	32.4	18.5	CLV
1SMB22A	22	24.4	28.0	1.0	5.0	35.5	16.9	CLX
1SMB24A	24	26.7	30.7	1.0	5.0	38.9	15.4	CLZ
1SMB26A	26	28.9	33.2	1.0	5.0	42.1	14.2	CME
1SMB28A	28	31.1	35.8	1.0	5.0	45.4	13.2	CMG
1SMB30A	30	33.3	38.3	1.0	5.0	48.4	12.4	CMK
1SMB33A	33	36.7	42.2	1.0	5.0	53.3	11.3	CMM
1SMB36A	36	40.0	46.0	1.0	5.0	58.1	10.3	CMP
1SMB40A	40	44.4	51.1	1.0	5.0	64.5	9.3	CMR
1SMB43A	43	47.8	54.9	1.0	5.0	69.4	8.6	CMT
1SMB45A	45	50.0	57.5	1.0	5.0	72.7	8.3	CMV
1SMB48A	48	53.3	61.3	1.0	5.0	77.4	7.7	CMX
1SMB51A	51	56.7	65.2	1.0	5.0	82.4	7.3	CMZ
1SMB54A	54	60.0	69.0	1.0	5.0	87.1	6.9	CNE
1SMB58A	58	64.4	74.1	1.0	5.0	93.6	6.4	CNG
1SMB60A	60	66.7	76.7	1.0	5.0	96.8	6.2	CNK
1SMB64A	64	71.1	81.8	1.0	5.0	103	5.8	CNM
1SMB70A	70	77.8	89.5	1.0	5.0	113	5.3	CNP
1SMB75A	75	83.3	95.8	1.0	5.0	121	4.9	CNR
1SMB78A	78	86.7	99.7	1.0	5.0	126	4.7	CNT
1SMB85A	85	94.4	108.2	1.0	5.0	137	4.4	CNV
1SMB90A	90	100.0	115.5	1.0	5.0	146	4.1	CNX
1SMB100A	100	111.0	128.0	1.0	5.0	162	3.7	CNZ
1SMB110A	110	122.0	140.5	1.0	5.0	177	3.4	CPE
1SMB120A	120	133.0	153.0	1.0	5.0	193	3.1	CPG
1SMB130A	130	144.0	165.5	1.0	5.0	209	2.9	CPK
1SMB150A	150	167.0	192.5	1.0	5.0	243	2.5	CPM
1SMB160A	160	178.0	205.0	1.0	5.0	259	2.3	CPP
1SMB170A	170	189.0	217.5	1.0	5.0	275	2.2	CPR

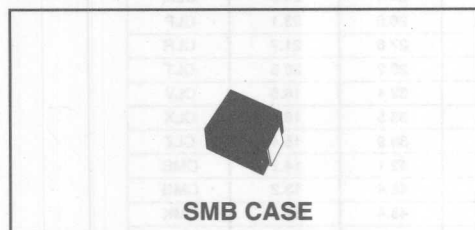
All Dimensions in Inches (mm).



DATA
SHEET

NEW 1SMB5.0CA
THRU
1SMB170CA

**BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
600 WATTS, 5.0 THRU 170 VOLTS**



Specified by
STAND-OFF VOLTAGE

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR 1SMB5.0CA Series types are Surface Mount Bi-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Uni-directional devices, please refer to the 1SMB5.0A Series data sheet.

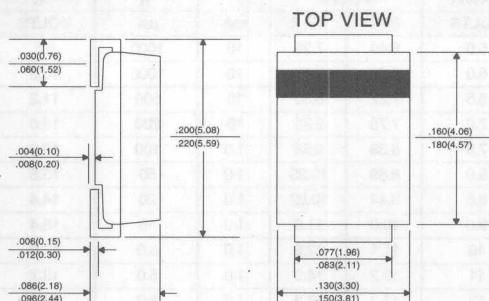
SYMBOL		UNITS
P_{DM}	600	W
I_{FSM}	100	A
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @ V_{RWM}	MAXIMUM CLAMPING VOLTAGE @ I_{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE		
		V_{BR}		$@I_T$						
		V_{RWM}							VOLTS		$I_R$	$V_C$	$I_{PPM}$
		VOLTS	MIN		MAX	mA	μA		VOLTS	A
1SMB5.0CA	5.0	6.40	7.25	10	1600	9.2	65.2	CKEC		
1SMB6.0CA	6.0	6.67	7.67	10	1600	10.3	58.3	CKGC		
1SMB6.5CA	6.5	7.22	8.30	10	1000	11.2	53.6	CKKC		
1SMB7.0CA	7.0	7.78	8.95	10	400	12.0	50.0	CKMC		
1SMB7.5CA	7.5	8.33	9.58	1.0	200	12.9	46.5	CKPC		
1SMB8.0CA	8.0	8.89	10.23	1.0	100	13.6	44.1	CKRC		
1SMB8.5CA	8.5	9.44	10.82	1.0	20	14.4	41.7	CKTC		
1SMB9.0CA	9.0	10.0	11.5	1.0	10	15.4	39.0	CKVC		
1SMB10CA	10	11.1	12.8	1.0	5.0	17.0	35.3	CKXC		
1SMB11CA	11	12.2	14.0	1.0	5.0	18.2	33.0	CKZC		
1SMB12CA	12	13.3	15.3	1.0	5.0	19.9	30.2	CLEC		
1SMB13CA	13	14.4	16.5	1.0	5.0	21.5	27.9	CLGC		

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM CLAMPING VOLTAGE @I _{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE
		V _{BR}		@I _T				
		VOLTS						
		V _{RWM}							I_{R}	V_{C}	I_{PPM}
	VOLTS	MIN	MAX	mA	μA	VOLTS	A	
1SMB14CA	14	15.6	17.9	1.0	5.0	23.2	25.8	CLKC
1SMB15CA	15	16.7	19.2	1.0	5.0	24.4	24.0	CLMC
1SMB16CA	16	17.8	20.5	1.0	5.0	26.0	23.1	CLPC
1SMB17CA	17	18.9	21.7	1.0	5.0	27.6	21.7	CLRC
1SMB18CA	18	20.0	23.3	1.0	5.0	29.2	20.5	CLTC
1SMB20CA	20	22.2	25.5	1.0	5.0	32.4	18.5	CLVC
1SMB22CA	22	24.4	28.0	1.0	5.0	35.5	16.9	CLXC
1SMB24CA	24	26.7	30.7	1.0	5.0	38.9	15.4	CLZC
1SMB26CA	26	28.9	33.2	1.0	5.0	42.1	14.2	CMEC
1SMB28CA	28	31.1	35.8	1.0	5.0	45.4	13.2	CMGC
1SMB30CA	30	33.3	38.3	1.0	5.0	48.4	12.4	CMKC
1SMB33CA	33	36.7	42.2	1.0	5.0	53.3	11.3	CMMC
1SMB36CA	36	40.0	46.0	1.0	5.0	58.1	10.3	CMPC
1SMB40CA	40	44.4	51.1	1.0	5.0	64.5	9.3	CMRC
1SMB43CA	43	47.8	54.9	1.0	5.0	69.4	8.6	CMTC
1SMB45CA	45	50.0	57.5	1.0	5.0	72.7	8.3	CMVC
1SMB48CA	48	53.3	61.3	1.0	5.0	77.4	7.7	CMXC
1SMB51CA	51	56.7	65.2	1.0	5.0	82.4	7.3	CMZC
1SMB54CA	54	60.0	69.0	1.0	5.0	87.1	6.9	CNEC
1SMB58CA	58	64.4	74.1	1.0	5.0	93.6	6.4	CNGC
1SMB60CA	60	66.7	76.7	1.0	5.0	96.8	6.2	CNKC
1SMB64CA	64	71.1	81.8	1.0	5.0	103	5.8	CNMC
1SMB70CA	70	77.8	89.5	1.0	5.0	113	5.3	CNPC
1SMB75CA	75	83.3	95.8	1.0	5.0	121	4.9	CNRC
1SMB78CA	78	86.7	99.7	1.0	5.0	126	4.7	CNTC
1SMB85CA	85	94.4	108.2	1.0	5.0	137	4.4	CNVC
1SMB90CA	90	100.0	115.5	1.0	5.0	146	4.1	CNXC
1SMB100CA	100	111.0	128.0	1.0	5.0	162	3.7	CNZC
1SMB110CA	110	122.0	140.5	1.0	5.0	177	3.4	CPEC
1SMB120CA	120	133.0	153.0	1.0	5.0	193	3.1	CPGC
1SMB130CA	130	144.0	165.5	1.0	5.0	209	2.9	CPKC
1SMB150CA	150	167.0	192.5	1.0	5.0	243	2.5	CPMC
1SMB160CA	160	178.0	205.0	1.0	5.0	259	2.3	CPPC
1SMB170CA	170	189.0	217.5	1.0	5.0	275	2.2	CPRC

All Dimensions in Inches (mm).



DATA
SHEET

NEW 1SMC5.0A
THRU
1SMC170A

UNI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
1500 WATTS, 5.0 THRU 170 VOLTS



Specified by
STAND-OFF VOLTAGE

MAXIMUM RATINGS (T_A=25°C)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR 1SMC5.0A Series types are Surface Mount Uni-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Bi-directional devices, please refer to the 1SMC5.0CA Series data sheet.

SYMBOL		UNITS
P _{DM}	1500	W
I _{FSM}	200	A
T _J , T _{stg}	-65 to +150	°C

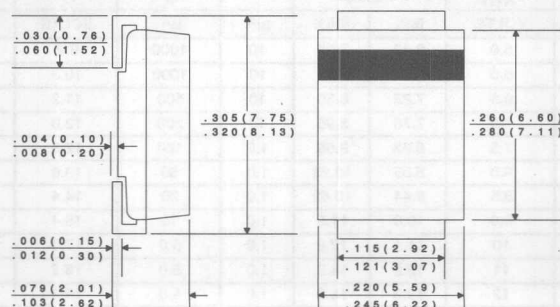
ELECTRICAL CHARACTERISTICS (T_A=25°C)

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @V _{RWM} I _R μA	MAXIMUM CLAMPING VOLTAGE @I _{PPM} V _C VOLTS	MAXIMUM PEAK PULSE CURRENT I _{PPM} A	MARKING CODE
		V _{BR}		@I _T mA				
		VOLTS						
		V _{RWM} VOLTS	MIN						MAX
1SMC5.0A	5.0	6.40	7.25	10	1000	9.2	163.0	CGDE
1SMC6.0A	6.0	6.67	7.67	10	1000	10.3	145.6	CGDG
1SMC6.5A	6.5	7.22	8.30	10	500	11.2	133.9	CGDK
1SMC7.0A	7.0	7.78	8.95	10	200	12.0	125.0	CGDM
1SMC7.5A	7.5	8.33	9.58	1.0	100	12.9	116.3	CGDP
1SMC8.0A	8.0	8.89	10.23	1.0	50	13.6	110.3	CGDR
1SMC8.5A	8.5	9.44	10.82	1.0	20	14.4	104.2	CGDT
1SMC9.0A	9.0	10.0	11.5	1.0	10	15.4	97.4	CGDV
1SMC10A	10	11.1	12.8	1.0	5.0	17.0	88.2	CGDX
1SMC11A	11	12.2	14.0	1.0	5.0	18.2	82.4	CGDZ
1SMC12A	12	13.3	15.3	1.0	5.0	19.9	75.3	CGEE
1SMC13A	13	14.4	16.5	1.0	5.0	21.5	69.7	CGEG

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM CLAMPING VOLTAGE @I _{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE
		V _{BR}		@I _T				
		V _{RWM}						
	VOLTS	MIN	MAX	mA	μA	VOLTS	A	
1SMC14A	14	15.6	17.9	1.0	5.0	23.2	64.7	CGEK
1SMC15A	15	16.7	19.2	1.0	5.0	24.4	61.5	CGEM
1SMC16A	16	17.8	20.5	1.0	5.0	26.0	57.7	CGEP
1SMC17A	17	18.9	21.7	1.0	5.0	27.6	53.3	CGER
1SMC18A	18	20.0	23.3	1.0	5.0	29.2	51.4	CGET
1SMC20A	20	22.2	25.5	1.0	5.0	32.4	46.3	CGEV
1SMC22A	22	24.4	28.0	1.0	5.0	35.5	42.2	CGEX
1SMC24A	24	26.7	30.7	1.0	5.0	38.9	38.6	CGEZ
1SMC26A	26	28.9	33.2	1.0	5.0	42.1	35.6	CGFE
1SMC28A	28	31.1	35.8	1.0	5.0	45.4	33.0	CGFG
1SMC30A	30	33.3	38.3	1.0	5.0	48.4	31.0	CGFK
1SMC33A	33	36.7	42.2	1.0	5.0	53.3	28.1	CGFM
1SMC36A	36	40.0	46.0	1.0	5.0	58.1	25.8	CGFP
1SMC40A	40	44.4	51.1	1.0	5.0	64.5	23.2	CGFR
1SMC43A	43	47.8	54.9	1.0	5.0	69.4	21.6	CGFT
1SMC45A	45	50.0	57.5	1.0	5.0	72.7	20.6	CGFV
1SMC48A	48	53.3	61.3	1.0	5.0	77.4	19.4	CGFX
1SMC51A	51	56.7	65.2	1.0	5.0	82.4	18.2	CGFZ
1SMC54A	54	60.0	69.0	1.0	5.0	87.1	17.2	CGGE
1SMC58A	58	64.4	74.1	1.0	5.0	93.6	16.0	CGGG
1SMC60A	60	66.7	76.7	1.0	5.0	96.8	15.5	CGGK
1SMC64A	64	71.1	81.8	1.0	5.0	103	14.6	CGGM
1SMC70A	70	77.8	89.5	1.0	5.0	113	13.3	CGGP
1SMC75A	75	83.3	95.8	1.0	5.0	121	12.4	CGGR
1SMC78A	78	86.7	99.7	1.0	5.0	126	11.4	CGGT
1SMC85A	85	94.4	108.2	1.0	5.0	137	10.4	CGGV
1SMC90A	90	100.0	115.5	1.0	5.0	146	10.3	CGGX
1SMC100A	100	111.0	128.0	1.0	5.0	162	9.3	CGGZ
1SMC110A	110	122.0	140.5	1.0	5.0	177	8.4	CGHE
1SMC120A	120	133.0	153.0	1.0	5.0	193	7.9	CGHG
1SMC130A	130	144.0	165.5	1.0	5.0	209	7.2	CGHK
1SMC150A	150	167.0	192.5	1.0	5.0	243	6.2	CGHM
1SMC160A	160	178.0	205.0	1.0	5.0	259	5.8	CGHP
1SMC170A	170	189.0	217.5	1.0	5.0	275	5.5	CGHR

All Dimensions in Inches (mm).

TOP VIEW



DATA
SHEET

NEW 1SMC5.0CA
THRU
1SMC170CA

BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
1500 WATTS, 5.0 THRU 170 VOLTS



SMC CASE

Specified by
STAND-OFF VOLTAGE

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR 1SMC5.0CA Series types are Surface Mount Bi-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Uni-directional devices, please refer to the 1SMC5.0A Series data sheet.

SYMBOL

UNITS

P_{DM}	1500	W
I_{FSM}	200	A
T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$

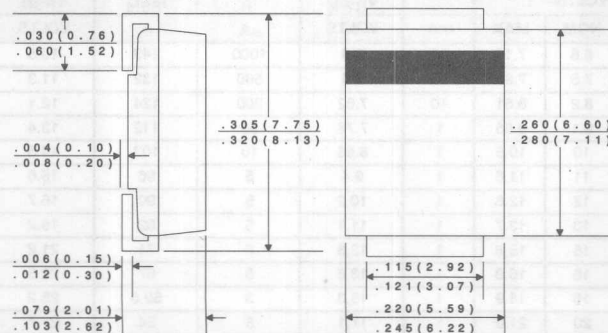
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @ V_{RWM} I_R μA	MAXIMUM CLAMPING VOLTAGE @ I_{PPM} V_C VOLTS	MAXIMUM PEAK PULSE CURRENT I_{PPM} A	MARKING CODE
		V_{BR}	$@I_T$					
V_{RWM}	VOLTS							
VOLTS	MIN	MAX	mA					
1SMC5.0CA	5.0	6.40	7.25	10	1000	9.2	163.0	CBDE
1SMC6.0CA	6.0	6.67	7.67	10	1000	10.3	145.6	CBDG
1SMC6.5CA	6.5	7.22	8.30	10	500	11.2	133.9	CBDK
1SMC7.0CA	7.0	7.78	8.95	10	200	12.0	125.0	CBDM
1SMC7.5CA	7.5	8.33	9.58	1.0	100	12.9	116.3	CBDP
1SMC8.0CA	8.0	8.89	10.23	1.0	50	13.6	110.3	CBDR
1SMC8.5CA	8.5	9.44	10.82	1.0	20	14.4	104.2	CBDT
1SMC9.0CA	9.0	10.0	11.5	1.0	10	15.4	97.4	CBDV
1SMC10CA	10	11.1	12.8	1.0	5.0	17.0	88.2	CBDX
1SMC11CA	11	12.2	14.0	1.0	5.0	18.2	82.4	CBDZ
1SMC12CA	12	13.3	15.3	1.0	5.0	19.9	75.3	CBEE
1SMC13CA	13	14.4	16.5	1.0	5.0	21.5	69.7	CBEG

TYPE NO.	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM CLAMPING VOLTAGE @I _{PPM}	MAXIMUM PEAK PULSE CURRENT	MARKING CODE
		V _{BR}		@I _T				
		VOLTS						
		V _{RWM}						
	VOLTS	MIN	MAX	mA	I _R μA	V _C VOLTS	I _{PPM} A	
1SMC14CA	14	15.6	17.9	1.0	5.0	23.2	64.7	CBEK
1SMC15CA	15	16.7	19.2	1.0	5.0	24.4	61.5	CBEM
1SMC16CA	16	17.8	20.5	1.0	5.0	26.0	57.7	CBEP
1SMC17CA	17	18.9	21.7	1.0	5.0	27.6	53.3	CBER
1SMC18CA	18	20.0	23.3	1.0	5.0	29.2	51.4	CBET
1SMC20CA	20	22.2	25.5	1.0	5.0	32.4	46.3	CBEV
1SMC22CA	22	24.4	28.0	1.0	5.0	35.5	42.2	CBEX
1SMC24CA	24	26.7	30.7	1.0	5.0	38.9	38.6	CBEZ
1SMC26CA	26	28.9	33.2	1.0	5.0	42.1	35.6	CBFE
1SMC28CA	28	31.1	35.8	1.0	5.0	45.4	33.0	CBFG
1SMC30CA	30	33.3	38.3	1.0	5.0	48.4	31.0	CBFK
1SMC33CA	33	36.7	42.2	1.0	5.0	53.3	28.1	CBFM
1SMC36CA	36	40.0	46.0	1.0	5.0	58.1	25.8	CBFP
1SMC40CA	40	44.4	51.1	1.0	5.0	64.5	23.2	CBFR
1SMC43CA	43	47.8	54.9	1.0	5.0	69.4	21.6	CBFT
1SMC45CA	45	50.0	57.5	1.0	5.0	72.7	20.6	CBFV
1SMC48CA	48	53.3	61.3	1.0	5.0	77.4	19.4	CBFX
1SMC51CA	51	56.7	65.2	1.0	5.0	82.4	18.2	CBFZ
1SMC54CA	54	60.0	69.0	1.0	5.0	87.1	17.2	CBGE
1SMC58CA	58	64.4	74.1	1.0	5.0	93.6	16.0	CBGG
1SMC60CA	60	66.7	76.7	1.0	5.0	96.8	15.5	CBGK
1SMC64CA	64	71.1	81.8	1.0	5.0	103	14.6	CBGM
1SMC70CA	70	77.8	89.5	1.0	5.0	113	13.3	CBGP
1SMC75CA	75	83.3	95.8	1.0	5.0	121	12.4	CBGR
1SMC78CA	78	86.7	99.7	1.0	5.0	126	11.4	CBGT
1SMC85CA	85	94.4	108.2	1.0	5.0	137	10.4	CBGV
1SMC90CA	90	100.0	115.5	1.0	5.0	146	10.3	CBGX
1SMC100CA	100	111.0	128.0	1.0	5.0	162	9.3	CBGZ
1SMC110CA	110	122.0	140.5	1.0	5.0	177	8.4	CBHE
1SMC120CA	120	133.0	153.0	1.0	5.0	193	7.9	CBHG
1SMC130CA	130	144.0	165.5	1.0	5.0	209	7.2	CBHK
1SMC150CA	150	167.0	192.5	1.0	5.0	243	6.2	CBHM
1SMC160CA	160	178.0	205.0	1.0	5.0	259	5.8	CBHP
1SMC170CA	170	189.0	217.5	1.0	5.0	275	5.5	CBHR

All Dimensions in Inches (mm).

TOP VIEW



DATA
SHEET

NEW 1.5SMC6.8A
THRU
1.5SMC200A

UNI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
1500 WATTS, 6.8 THRU 200 VOLTS



SMC CASE

Specified by
BREAKDOWN
VOLTAGE

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

SYMBOL

UNITS

P_{PM}	1500	W
I_{FSM}	200	A
T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE VOLTAGE @I _{RSM}	MAXIMUM TEMP. COEFFICIENT	MARKING CODE
	V _{BR}			@I _T						
	VOLTS			V _{RWM}							I_{R}	I_{RSM}	V_{RSM}
MIN	NOM	MAX	mA	VOLTS	μA	A	VOLTS	%/°C		
1.5SMC6.8A	6.45	6.8	7.14	10	5.8	1000	143	10.5	0.057	C6V8A
1.5SMC7.5A	7.13	7.5	7.88	10	6.4	500	132	11.3	0.061	C7V5A
1.5SMC8.2A	7.79	8.2	8.61	10	7.02	200	124	12.1	0.065	C8V2A
1.5SMC9.1A	8.65	9.1	9.55	1	7.78	50	112	13.4	0.068	C9V1A
1.5SMC10A	9.5	10	10.5	1	8.55	10	103	14.5	0.073	C10A
1.5SMC11A	10.5	11	11.6	1	9.4	5	96	15.6	0.075	C11A
1.5SMC12A	11.4	12	12.6	1	10.2	5	90	16.7	0.078	C12A
1.5SMC13A	12.4	13	13.7	1	11.1	5	82	18.2	0.081	C13A
1.5SMC15A	14.3	15	15.8	1	12.8	5	71	21.2	0.084	C15A
1.5SMC16A	15.2	16	16.8	1	13.6	5	67	22.5	0.086	C16A
1.5SMC18A	17.1	18	18.9	1	15.3	5	59.5	25.2	0.088	C18A
1.5SMC20A	19.0	20	21.0	1	17.1	5	54	27.7	0.090	C20A

CentralTM
Semiconductor Corp.

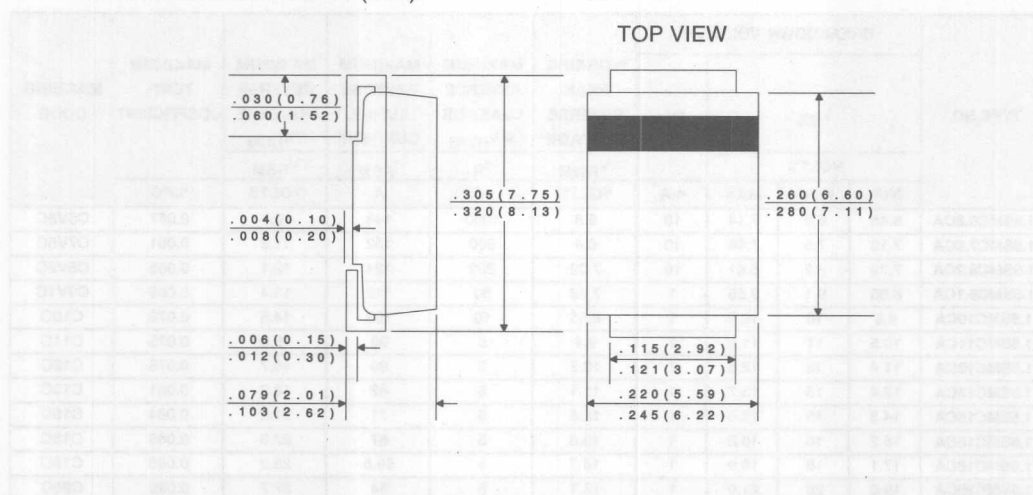
DESCRIPTION

The CENTRAL SEMICONDUCTOR 1.5SMC6.8A Series types are Surface Mount Uni-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Bi-directional devices, please refer to the 1.5SMC6.8CA Series data sheet.

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM REVERSE SURGE CURRENT I _{RSM}	MAXIMUM REVERSE VOLTAGE @I _{RSM}	MAXIMUM TEMP. COEFFICIENT	MARKING CODE
	V _{BR}			@I _T						
	VOLTS									
	MIN	NOM	MAX								mA
1.5SMC22A	20.9	22	23.1	1	18.8	5	49	30.6	0.092	C22A
1.5SMC24A	22.8	24	25.2	1	20.5	5	45	33.2	0.094	C24A
1.5SMC27A	25.7	27	28.4	1	23.1	5	40	37.5	0.096	C27A
1.5SMC30A	28.5	30	31.5	1	25.6	5	36	41.4	0.097	C30A
1.5SMC33A	31.4	33	34.7	1	28.2	5	33	45.7	0.098	C33A
1.5SMC36A	34.2	36	37.8	1	30.8	5	30	49.9	0.099	C36A
1.5SMC39A	37.1	39	41	1	33.3	5	28	53.9	0.100	C39A
1.5SMC43A	40.9	43	45.2	1	36.8	5	25.3	59.3	0.101	C43A
1.5SMC47A	44.7	47	49.4	1	40.2	5	23.2	64.8	0.101	C47A
1.5SMC51A	48.5	51	53.6	1	43.6	5	21.4	70.1	0.102	C51A
1.5SMC56A	53.2	56	58.8	1	47.8	5	19.5	77	0.103	C56A
1.5SMC62A	58.9	62	65.1	1	53.0	5	17.7	85	0.104	C62A
1.5SMC68A	64.6	68	71.4	1	58.1	5	16.3	92	0.104	C68A
1.5SMC75A	71.3	75	78.8	1	64.1	5	14.6	103	0.105	C75A
1.5SMC82A	77.9	82	86.1	1	70.1	5	13.3	113	0.105	C82A
1.5SMC91A	86.5	91	95.5	1	77.8	5	12	125	0.106	C91A
1.5SMC100A	95.0	100	105	1	85.5	5	11	137	0.106	C100A
1.5SMC110A	104.5	110	115.5	1	94.0	5	9.9	152	0.107	C110A
1.5SMC120A	114	120	126	1	102	5	9.1	165	0.107	C120A
1.5SMC130A	123.5	130	136.5	1	111	5	8.4	179	0.107	C130A
1.5SMC150A	142.5	150	157.5	1	128	5	7.2	207	0.108	C150A
1.5SMC160A	152	160	168	1	136	5	6.8	219	0.108	C160A
1.5SMC170A	161.5	170	178.5	1	145	5	6.4	234	0.108	C170A
1.5SMC180A	171	180	189	1	154	5	6.1	246	0.108	C180A
1.5SMC200A	190	200	210	1	171	5	5.5	274	0.108	C200A

All Dimensions in Inches (mm).



DATA
SHEET

NEW 1.5SMC6.8CA
THRU
1.5SMC200CA

BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
1500 WATTS, 6.8 THRU 200 VOLTS



SMC CASE

Specified by
BREAKDOWN
VOLTAGE

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR 1.5SMC6.8CA Series types are Surface Mount Bi-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Uni-directional devices, please refer to the 1.5SMC6.8A Series data sheet.

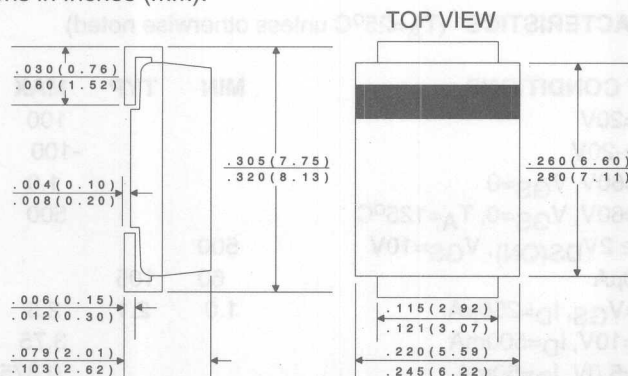
SYMBOL		UNITS
P_{PM}	1500	W
I_{FSM}	200	A
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE VOLTAGE @I _{RSM}	MAXIMUM TEMP. COEFFICIENT	MARKING CODE
	V _{BR}			@I _T						
	VOLTS			V _{RWM}							I_{R}	I_{RSM}	V_{RSM}
MIN	NOM	MAX	mA	VOLTS	μA	A	VOLTS	%°C		
1.5SMC6.8CA	6.45	6.8	7.14	10	5.8	1000	143	10.5	0.057	C6V8C
1.5SMC7.5CA	7.13	7.5	7.88	10	6.4	500	132	11.3	0.061	C7V5C
1.5SMC8.2CA	7.79	8.2	8.61	10	7.02	200	124	12.1	0.065	C8V2C
1.5SMC9.1CA	8.65	9.1	9.55	1	7.78	50	112	13.4	0.068	C9V1C
1.5SMC10CA	9.5	10	10.5	1	8.55	10	103	14.5	0.073	C10C
1.5SMC11CA	10.5	11	11.6	1	9.4	5	96	15.6	0.075	C11C
1.5SMC12CA	11.4	12	12.6	1	10.2	5	90	16.7	0.078	C12C
1.5SMC13CA	12.4	13	13.7	1	11.1	5	82	18.2	0.081	C13C
1.5SMC15CA	14.3	15	15.8	1	12.8	5	71	21.2	0.084	C15C
1.5SMC16CA	15.2	16	16.8	1	13.6	5	67	22.5	0.086	C16C
1.5SMC18CA	17.1	18	18.9	1	15.3	5	59.5	25.2	0.088	C18C
1.5SMC20CA	19.0	20	21.0	1	17.1	5	54	27.7	0.090	C20C

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @V _{RWM}	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE VOLTAGE @I _{RSM}	MAXIMUM TEMP. COEFFICIENT	MARKING CODE
	V _{BR}			@I _T						
	MIN	NOM	MAX	mA							V_{RWM} VOLTS	I_{R} μA	I_{RSM} A	V_{RSM} VOLTS	%/°C
1.5SMC22CA	20.9	22	23.1	1	18.8	5	49	30.6	0.092	C22C
1.5SMC24CA	22.8	24	25.2	1	20.5	5	45	33.2	0.094	C24C
1.5SMC27CA	25.7	27	28.4	1	23.1	5	40	37.5	0.096	C27C
1.5SMC30CA	28.5	30	31.5	1	25.6	5	36	41.4	0.097	C30C
1.5SMC33CA	31.4	33	34.7	1	28.2	5	33	45.7	0.098	C33C
1.5SMC36CA	34.2	36	37.8	1	30.8	5	30	49.9	0.099	C36C
1.5SMC39CA	37.1	39	41	1	33.3	5	28	53.9	0.100	C39C
1.5SMC43CA	40.9	43	45.2	1	36.8	5	25.3	59.3	0.101	C43C
1.5SMC47CA	44.7	47	49.4	1	40.2	5	23.2	64.8	0.101	C47C
1.5SMC51CA	48.5	51	53.6	1	43.6	5	21.4	70.1	0.102	C51C
1.5SMC56CA	53.2	56	58.8	1	47.8	5	19.5	77	0.103	C56C
1.5SMC62CA	58.9	62	65.1	1	53.0	5	17.7	85	0.104	C62C
1.5SMC68CA	64.6	68	71.4	1	58.1	5	16.3	92	0.104	C68C
1.5SMC75CA	71.3	75	78.8	1	64.1	5	14.6	103	0.105	C75C
1.5SMC82CA	77.9	82	86.1	1	70.1	5	13.3	113	0.105	C82C
1.5SMC91CA	86.5	91	95.5	1	77.8	5	12	125	0.106	C91C
1.5SMC100CA	95.0	100	105	1	85.5	5	11	137	0.106	C100C
1.5SMC110CA	104.5	110	115.5	1	94.0	5	9.9	152	0.107	C110C
1.5SMC120CA	114	120	126	1	102	5	9.1	165	0.107	C120C
1.5SMC130CA	123.5	130	136.5	1	111	5	8.4	179	0.107	C130C
1.5SMC150CA	142.5	150	157.5	1	128	5	7.2	207	0.108	C150C
1.5SMC160CA	152	160	168	1	136	5	6.8	219	0.108	C160C
1.5SMC170CA	161.5	170	178.5	1	145	5	6.4	234	0.108	C170C
1.5SMC180CA	171	180	189	1	154	5	6.1	246	0.108	C180C
1.5SMC200CA	190	200	210	1	171	5	5.5	274	0.108	C200C

All Dimensions in Inches (mm).



DATA
SHEET

2N7002

**N-CHANNEL
ENHANCEMENT-MODE
MOSFET**



SOT-23 CASE

Central™
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N7002 type is a N-Channel Field Effect Transistor, manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications.

Marking Code is 702.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Drain-Source Voltage
Drain-Gate Voltage
Gate-Source Voltage
Continuous Drain Current ($T_C=25^\circ\text{C}$)
Continuous Drain Current ($T_C=100^\circ\text{C}$)
Continuous Source Current (Body Diode)
Maximum Pulsed Drain Current
Maximum Pulsed Source Current
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

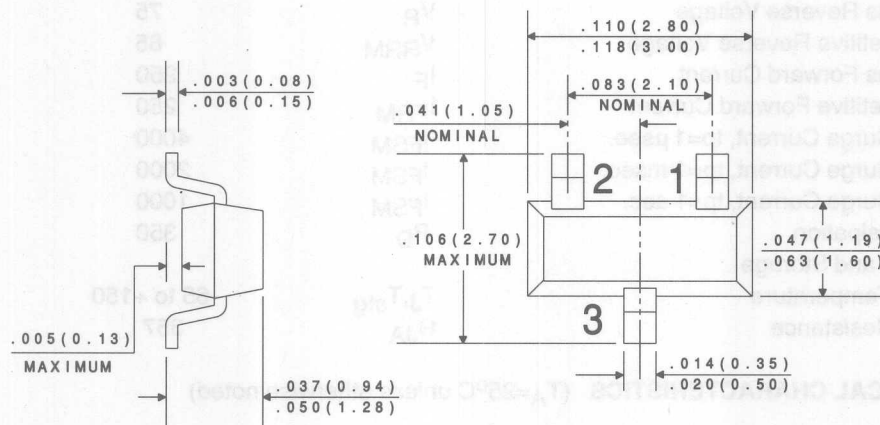
SYMBOL		UNITS
V_{DS}	60	V
V_{DG}	60	V
V_{GS}	40	V
I_D	115	mA
I_D	75	mA
I_S	115	mA
I_{DM}	800	mA
I_{SM}	800	mA
P_D	350	mW
T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}	$V_{GS}=20\text{V}$			100	nA
I_{GSSR}	$V_{GS}=-20\text{V}$			-100	nA
I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0$			1.0	μA
I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0, T_A=125^\circ\text{C}$			500	μA
$I_{D(ON)}$	$V_{DS} \geq 2V_{DS(ON)}, V_{GS}=10\text{V}$	500			mA
BV_{DSS}	$I_D=10\mu\text{A}$	60	105		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0	2.1	2.5	V
$V_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$			3.75	V
$V_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=50\text{mA}$			0.375	V
$r_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$		3.7	7.5	Ω

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$r_{DS(ON)}$	$V_{GS}=10V, I_D=500mA, T_A=100^{\circ}C$			13.5	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$		6.2	7.5	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA, T_A=100^{\circ}C$			13.5	Ω
g_{FS}	$V_{DS} \geq 2V_{DS(ON)}, I_D=200mA$	80			mmhos
C_{rss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			5.0	pF
C_{iss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			50	pF
C_{oss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			25	pF
t_{on}	$V_{DD}=30V, I_D=10V, R_G=25\Omega, R_L=25\Omega$			20	ns
t_{off}	$V_{DD}=30V, I_D=10V, R_G=25\Omega, R_L=25\Omega$			20	ns
V_{SD}	$V_{GS}=0V, I_S=11.5mA$			-1.5	V

All dimensions in inches (mm).

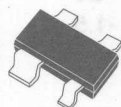


LEAD CODE:

- 1) GATE
- 2) SOURCE
- 3) DRAIN

DATA SHEET

R1

BAS28**DUAL, ISOLATED HIGH SPEED
SWITCHING DIODE****SOT-143 CASE**
Central™
Semiconductor Corp.
DESCRIPTION:

The CENTRAL SEMICONDUCTOR BAS28 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded surface mount package with isolated dual diodes, designed for high speed switching applications.

Marking code is A61.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Continuous Reverse Voltage
 Peak Repetitive Reverse Voltage
 Continuous Forward Current
 Peak Repetitive Forward Current
 Forward Surge Current, $t_p=1\ \mu\text{sec.}$
 Forward Surge Current, $t_p=1\ \text{msec.}$
 Forward Surge Current, $t_p=1\ \text{sec.}$
 Power Dissipation
 Operating and Storage
 Junction Temperature
 Thermal Resistance

SYMBOL

V_R	75
V_{RRM}	85
I_F	250
I_{FRM}	250
I_{FSM}	4000
I_{FSM}	2000
I_{FSM}	1000
P_D	350
T_J, T_{stg}	-65 to +150
θ_{JA}	357

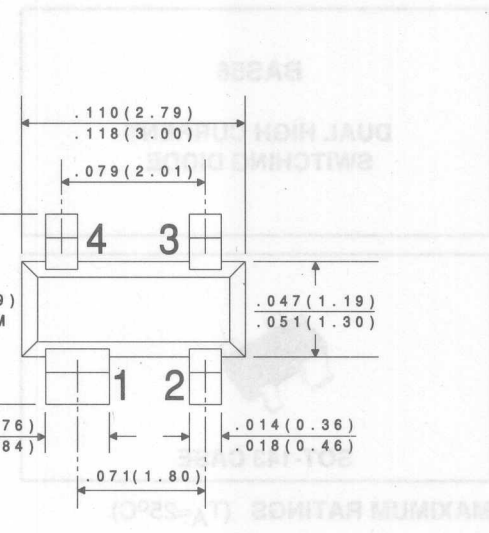
UNITS

V
 V
 mA
 mA
 mA
 mA
 mA
 mW
 $^\circ\text{C}$
 $^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=25\text{V}, T_A=150^\circ\text{C}$		30	μA
I_R	$V_R=75\text{V}$		1.0	μA
I_R	$V_R=75\text{V}, T_A=150^\circ\text{C}$		50	μA
V_F	$I_F=1.0\text{mA}$		0.715	V
V_F	$I_F=10\text{mA}$		0.855	V
V_F	$I_F=50\text{mA}$		1.000	V
V_F	$I_F=150\text{mA}$		1.250	V
C_T	$V_R=0, f=1\ \text{MHz}$		2.0	pF
t_{rr}	$I_F=I_R=10\text{mA}, R_L=100\Omega, \text{Rec. to } 1.0\text{mA}$		6.0	ns
Q_s	$I_F=10\text{mA}, V_R=5.0\text{V}, R_L=500\Omega$		45	pC
V_{FR}	$I_F=10\text{mA}, t_r=20\text{ns}$		1.75	V

dimensions in inches (mm).

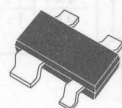


MAXIMUM RATING (TA=25°C)

DATA SHEET

R2

BAS56
**DUAL HIGH CURRENT
SWITCHING DIODE**



SOT-143 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BAS56 type is an ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded surface mount package with isolated dual diodes, designed for high current, high speed switching applications.

Marking code is L51.

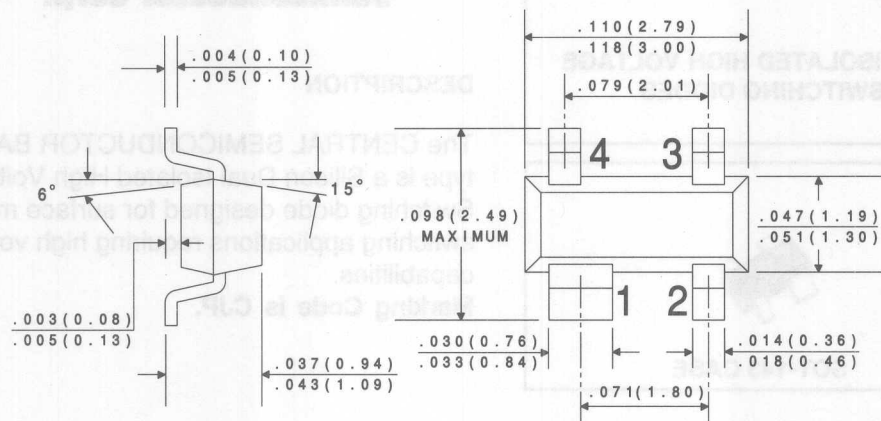
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	60	V
Peak Repetitive Reverse Voltage	V_{RRM}	60	V
Continuous Forward Current	I_F	200	mA
Peak Repetitive Forward Current	I_{FRM}	600	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=60\text{V}$		100	nA
I_R	$V_R=60\text{V}, T_A=150^{\circ}\text{C}$		100	μA
I_R	$V_R=75\text{V}$		10	μA
V_F	$I_F=10\text{mA}$		0.75	V
V_F	$I_F=200\text{mA}$		1.00	V
V_F	$I_F=500\text{mA}$		1.25	V
C_T	$V_R=0, f=1\ \text{MHz}$		2.5	pF
t_{rr}	$I_F=I_R=400\text{mA}, R_L=100\Omega, \text{Rec. to } 40\text{mA}$		6.0	ns
Q_S	$I_F=10\text{mA}, V_R=5.0\text{V}, R_L=500\Omega$		50	pC
V_{FR}	$I_F=400\text{mA}, t_r=30\text{ns}$		1.2	V
V_{FR}	$I_F=400\text{mA}, t_r=100\text{ns}$		1.5	V

All dimensions in inches (mm).



LEAD CODE:

- 1) CATHODE 1
- 2) CATHODE 2
- 3) ANODE 2
- 4) ANODE 1

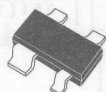
DATA
SHEET

R2



BAW101

DUAL, ISOLATED HIGH VOLTAGE
SWITCHING DIODES



SOT-143 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR BAW101 type is a Silicon Dual Isolated High Voltage Switching diode designed for surface mount switching applications requiring high voltage capabilities.

Marking Code is CJP.

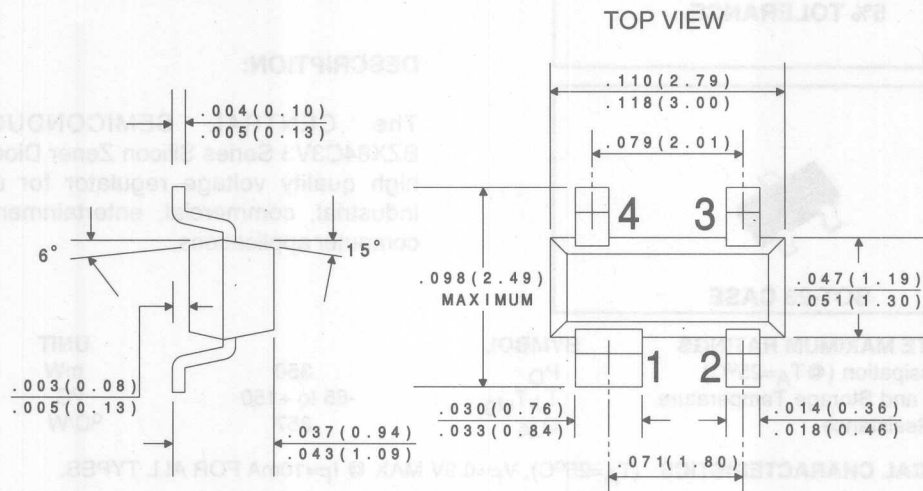
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	300	V
Peak Repetitive Reverse Voltage	V_{RRM}	300	V
Continuous Forward Current	I_F	200	mA
Peak Repetitive Forward Current	I_{FRM}	500	mA
Forward Surge Current, $t_p=1\ \mu\text{s}$	I_{FSM}	4500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	Θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=250\text{V}$			150	nA
I_R	$V_R=250\text{V}, T_A=150^\circ\text{C}$			50	μA
B_{VR}	$I_R=100\ \mu\text{A}$	300			V
V_F	$I_F=100\text{mA}$		0.9	1.3	V
C_T	$V_R=0\text{V}, f=1.0\text{MHz}$			5.0	pF
t_{rr}	$I_F=I_R=30\text{mA}, I_{rr}=3.0\text{mA}, R_L=100\ \Omega$			50	ns

All Dimensions in Inches (mm).



LEAD CODE:

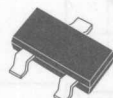
- 1) Cathode 1
- 2) Cathode 2
- 3) Anode 2
- 4) Anode 1

DATA
SHEET

R2

BZX84C3V3 THRU BZX84C33

350mW ZENER DIODE
3.3 VOLTS THRU 33 VOLTS
5% TOLERANCE

**SOT-23 CASE**

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BZX84C3V3 Series Silicon Zener Diode is a high quality voltage regulator for use in industrial, commercial, entertainment and computer applications.

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
 Operating and Storage Temperature
 Thermal Resistance

SYMBOL

P_D
 T_J, T_{stg}
 θ_{JA}

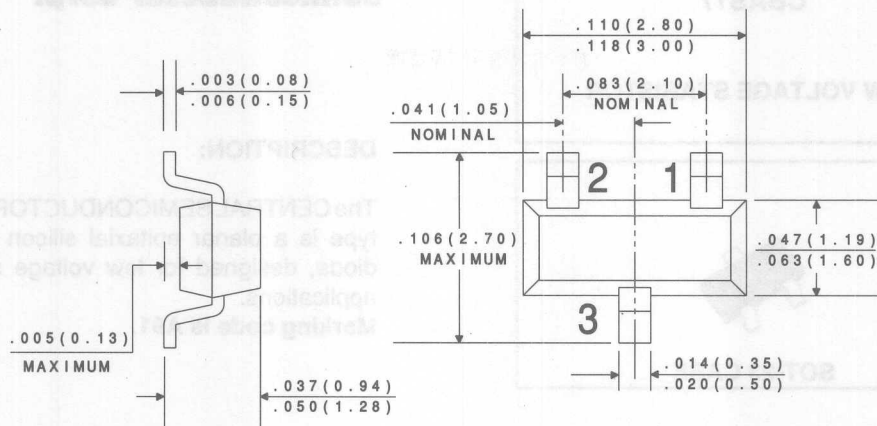
UNIT

350
 -65 to +150
 357
 mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX}$ @ $I_F=10\text{mA}$ FOR ALL TYPES.

TYPE	Zener Voltage V _Z @I _{ZT}		Test Current I _{ZT}	Maximum Zener Impedance			Maximum Reverse Current		Maximum Zener Current I _{ZM}	Maximum ZenerVoltage Temperature Coefficient ΘV _Z	Marking Code
	MIN	MAX		Z _{ZT} @I _{ZT}	Z _{ZK} @I _{ZK}		I _R @V _R				
	Volts	Volts		mA	Ω	Ω	mA	μA	Volts	mA		%/°C
BZX84C3V3	3.1	3.5	5.0	95	600	1.0	5.0	1.0	76	-0.06	W6
BZX84C3V6	3.4	3.8	5.0	90	600	1.0	5.0	1.0	69	-0.06	W7
BZX84C3V9	3.7	4.1	5.0	90	600	1.0	3.0	1.0	64	-0.06	W8
BZX84C4V3	4.0	4.6	5.0	90	600	1.0	3.0	1.0	58	-0.05	W9
BZX84C4V7	4.4	5.0	5.0	80	500	1.0	3.0	2.0	53	-0.03	Z1
BZX84C5V1	4.8	5.4	5.0	60	480	1.0	2.0	2.0	49	0.02	Z2
BZX84C5V6	5.2	6.0	5.0	40	400	1.0	1.0	2.0	45	0.03	Z3
BZX84C6V2	5.8	6.6	5.0	10	150	1.0	3.0	4.0	40	0.04	Z4
BZX84C6V8	6.4	7.2	5.0	15	80	1.0	2.0	4.0	37	0.05	Z5
BZX84C7V5	7.0	7.9	5.0	15	80	1.0	1.0	5.0	33	0.05	Z6
BZX84C8V2	7.7	8.9	5.0	15	80	1.0	0.7	5.0	30	0.06	Z7
BZX84C9V1	8.5	9.6	5.0	15	100	1.0	0.5	6.0	27	0.06	Z8
BZX84C10	9.4	10.6	5.0	20	150	1.0	0.2	7.0	25	0.07	Z9
BZX84C11	10.4	11.6	5.0	20	150	1.0	0.1	8.0	23	0.07	Y1
BZX84C12	11.4	12.7	5.0	25	150	1.0	0.1	8.0	21	0.07	Y2
BZX84C13	12.4	14.1	5.0	30	170	1.0	0.1	8.0	19	0.08	Y3
BZX84C15	13.8	15.6	5.0	30	200	1.0	0.05	10.5	17	0.08	Y4
BZX84C16	15.3	17.1	5.0	40	200	1.0	0.05	11.2	16	0.08	Y5
BZX84C18	16.8	19.1	5.0	45	225	1.0	0.05	12.6	14	0.08	Y6
BZX84C20	18.8	21.2	5.0	55	225	1.0	0.05	14.0	12	0.08	Y7
BZX84C22	20.8	23.3	5.0	55	250	1.0	0.05	15.4	11	0.09	Y8
BZX84C24	22.8	25.6	5.0	70	250	1.0	0.05	16.8	10	0.09	Y9
BZX84C27	25.1	28.9	2.0	80	300	0.5	0.05	18.9	9	0.09	Y10
BZX84C30	28.0	32.0	2.0	80	300	0.5	0.05	21.0	8	0.09	Y11
BZX84C33	31.0	35.0	2.0	80	325	0.5	0.05	23.1	7	0.09	Y12

All dimensions in inches (mm).



LEAD CODE:

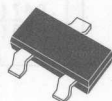
- 1) ANODE
- 2) NO CONNECTION
- 3) CATHODE

DATA
SHEET

R2

CBAS17

LOW VOLTAGE STABISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CBAS17 type is a planar epitaxial silicon switching diode, designed for low voltage stabilizing applications.

Marking code is A91.

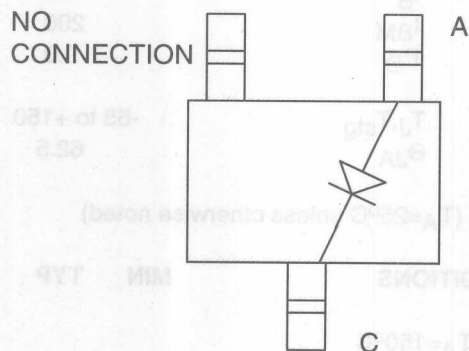
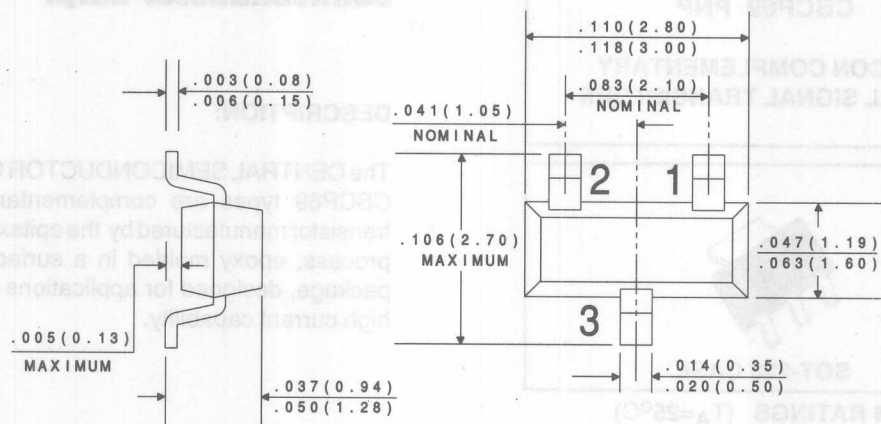
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Forward Current	I_{FRM}	250	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=0.1\text{mA}$	.580	.665	.680	V
V_F	$I_F=1.0\text{mA}$	.665	.745	.760	V
V_F	$I_F=5.0\text{mA}$	.725	.805	.820	V
V_F	$I_F=10\text{mA}$	.750	.825	.840	V
V_F	$I_F=100\text{mA}$	.870	.920	.960	V
I_R	$V_R=4.0\text{V}$			5.0	μA
C_T	$V_R=0, f=1\text{ MHz}$			140	pF

All dimensions in inches (mm).

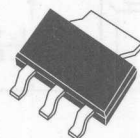


DATA
SHEET

R2

**CBCP68 NPN
CBCP69 PNP**

**SILICON COMPLEMENTARY
SMALL SIGNAL TRANSISTORS**



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CBCP68, CBCP69 types are complementary silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring high current capability.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

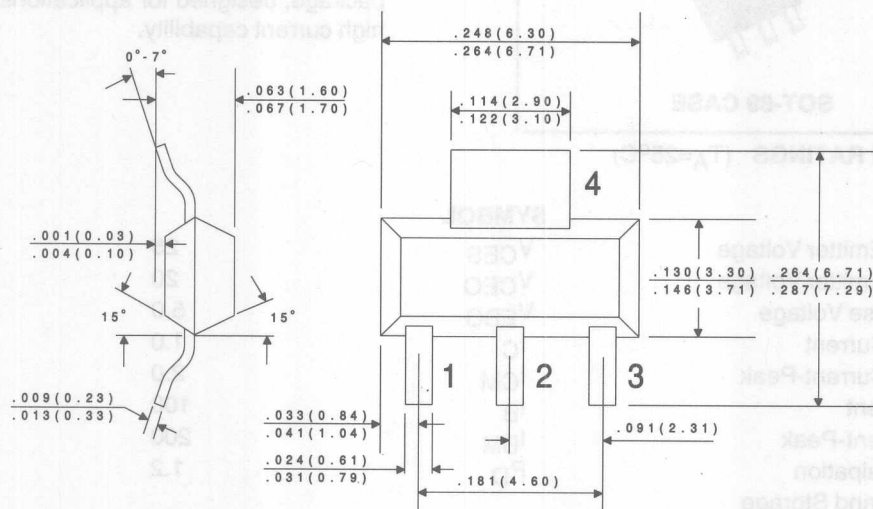
	SYMBOL		UNITS
Collector-Emitter Voltage	V_{CES}	25	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	1.0	A
Collector Current-Peak	I_{CM}	2.0	A
Base Current	I_B	100	mA
Base Current-Peak	I_{BM}	200	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CBO}	$V_{CB}=25\text{V}$			10	μA
I_{CBO}	$V_{CB}=25\text{V}, T_A=150^{\circ}\text{C}$			1.0	mA
I_{EBO}	$V_{EB}=5.0\text{V}$			10	μA
BV_{CBO}	$I_C=10\mu\text{A}$	25			V
BV_{CEO}	$I_C=10\text{mA}$	20			V
BV_{EBO}	$I_E=1.0\mu\text{A}$	5.0			V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$			0.5	V
$V_{BE(ON)}$	$V_{CE}=10\text{V}, I_C=5.0\text{mA}$		0.6		V
$V_{BE(ON)}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$			1.0	V
h_{FE}	$V_{CE}=10\text{V}, I_C=5.0\text{mA}$	50			

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
h_{FE}	$V_{CE}=1.0V, I_C=500mA$	85		375	
h_{FE}	$V_{CE}=1.0V, I_C=1.0A$	60			
f_T	$V_{CE}=5.0V, I_C=10mA, f=20MHz$	65			MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, F=450kHz$		25		pF

All dimensions in inches (mm).



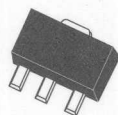
LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

CBCX68 NPN
CBCX69 PNP

SILICON COMPLEMENTARY
SMALL SIGNAL TRANSISTORS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CBCX68, CBCX69 types are complementary silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring high current capability.

MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Emitter Voltage	V _{CE}	25	V
Collector-Emitter Voltage	V _{CEO}	20	V
Emitter-Base Voltage	V _{EB}	5.0	V
Collector Current	I _C	1.0	A
Collector Current-Peak	I _{CM}	2.0	A
Base Current	I _B	100	mA
Base Current-Peak	I _{BM}	200	mA
Power Dissipation	P _D	1.2	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	104	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{CBO}	V _{CB} =25V			100	nA
I _{CBO}	V _{CB} =25V, T _A =150°C			10	μA
I _{EBO}	V _{EB} =5.0V			10	μA
BV _{CBO}	I _C =10μA	25			V
BV _{CEO}	I _C =10mA	20			V
BV _{EBO}	I _E =1.0μA	5.0			V
V _{CE(SAT)}	I _C =1.0A, I _B =100mA			0.5	V
V _{BE(ON)}	V _{CE} =10V, I _C =5.0mA		0.6		V
V _{BE(ON)}	V _{CE} =1.0V, I _C =1.0A			1.0	V

SYMBOL

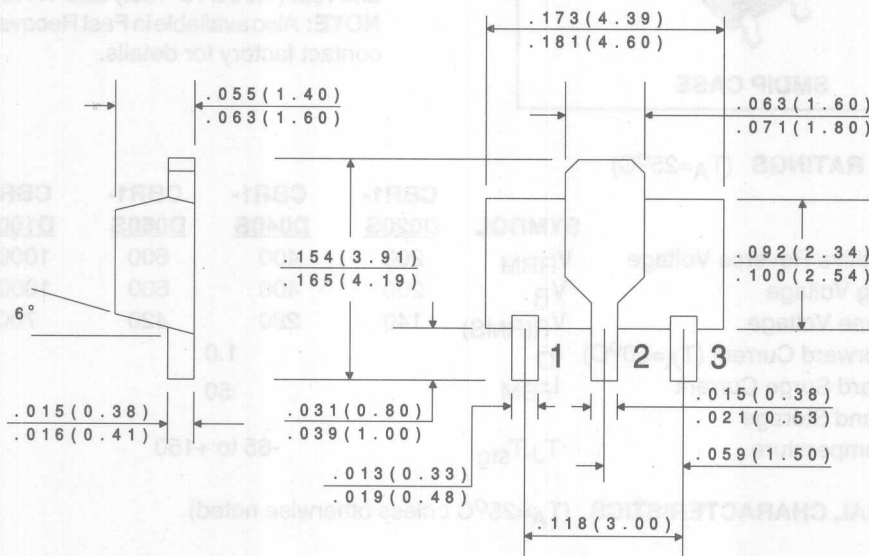
h_{FE}
 h_{FE}
 h_{FE}
 f_T

TEST CONDITIONS

$V_{CE}=10V, I_C=5.0mA$
 $V_{CE}=1.0V, I_C=500mA$
 $V_{CE}=1.0V, I_C=1.0A$
 $V_{CE}=5.0V, I_C=10mA, f=20MHz$

MIN	TYP	MAX	UNITS
50			
85		375	
60			
65			MHz

All dimensions in inches (mm).



LEAD CODE:

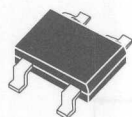
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
 SHEET

R2

CBR1-D020S SERIES

1.0 AMP DUAL IN LINE BRIDGE RECTIFIER



SMDIP CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CBR1-D020S series types are silicon full wave bridge rectifiers mounted in a durable epoxy, surface mount, molded case, utilizing glass passivated chips. To order devices on tape and reel (1,000/13" reel) add TR13 suffix.

NOTE: Also available in Fast Recovery, please contact factory for details.

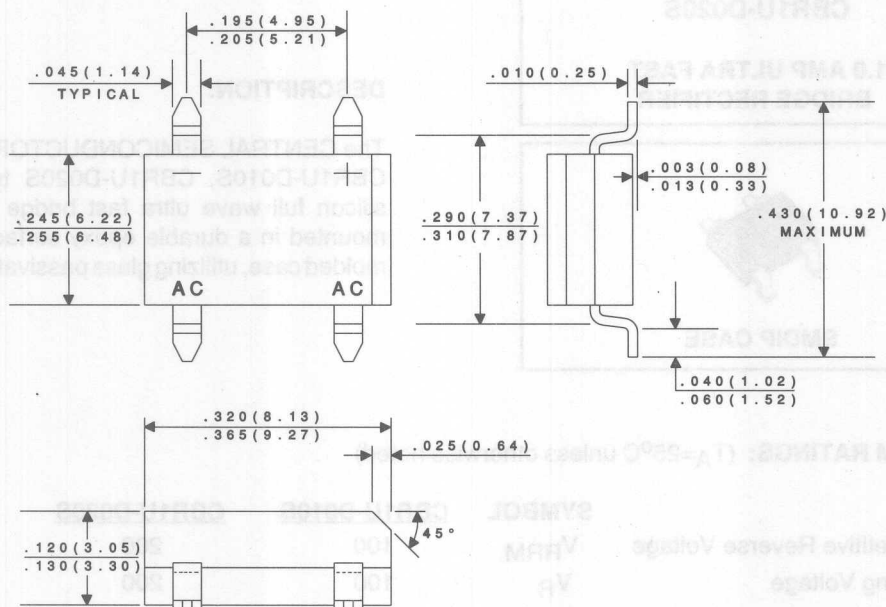
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL	CBR1- D020S	CBR1- D040S	CBR1- D060S	CBR1- D100S	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	200	400	600	1000	V
DC Blocking Voltage	V _R	200	400	600	1000	V
RMS Reverse Voltage	V _{R(RMS)}	140	280	420	700	V
Average Forward Current (T _A =50°C)	I _O		1.0			A
Peak Forward Surge Current	I _{FSM}		50			A
Operating and Storage Junction Temperature	T _J , T _{stg}		-65 to +150			°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V _F	I _F =1.0A			1.1	V
I _R	V _R =Rated V _{RRM}			10	μA
I _R	V _R =Rated V _{RRM} , T _A =125°C			0.5	mA
C _J	V _R =4.0V, f=1.0MHz		25		pF

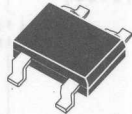
All dimensions in inches (mm).



DATA
SHEET

CBR1U-D010S
CBR1U-D020S

1.0 AMP ULTRA FAST
BRIDGE RECTIFIER



SMDIP CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CBR1U-D010S, CBR1U-D020S types are silicon full wave ultra fast bridge rectifiers mounted in a durable epoxy surface mount molded case, utilizing glass passivated chips.

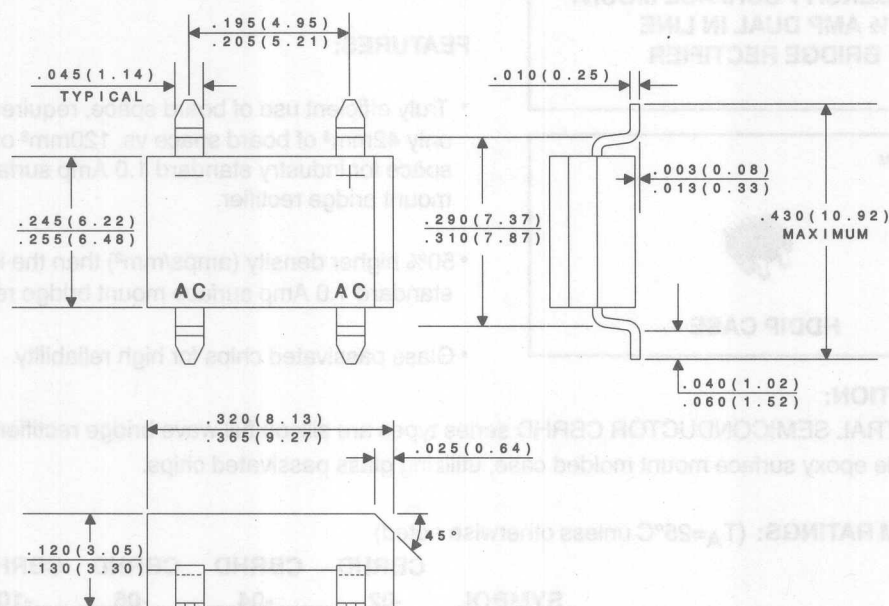
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CBR1U-D010S	CBR1U-D020S	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	V
DC Blocking Voltage	V_R	100	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	140	V
Average Forward Current ($T_A=40^{\circ}\text{C}$)	I_O	1.0		A
Peak Forward Surge Current	I_{FSM}	50		A
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	40		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_F	$I_F=1.0\text{A}$ (Per Diode)		1.05	V
I_R	$V_R=\text{Rated } V_{RRM}$		5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^{\circ}\text{C}$		1.0	mA
t_{rr}	$I_F=500\text{mA}, I_R=1.0\text{A}, I_{rr}=250\text{mA}$		50	ns

All dimensions in inches (mm).



DATA SHEET

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=100\text{mA}$ (For Diode)			1.0	V
I_F	$V_F=\text{Rated } V_{F(RM)}$			2.0	mA
I_F	$V_F=\text{Rated } V_{F(RM)}$ $T_A=125^\circ\text{C}$			800	mA
C_j	$V_F=0.5\text{V}$ $f=1\text{MHz}$		20		pF

CBRHD SERIES

HIGH DENSITY SURFACE MOUNT
½ AMP DUAL IN LINE
BRIDGE RECTIFIER

HDTM
BRIDGE



HDDIP CASE

CentralTM
Semiconductor Corp.

FEATURES:

- Truly efficient use of board space, requires only 42mm² of board space vs. 120mm² of board space for industry standard 1.0 Amp surface mount bridge rectifier.
- 50% higher density (amps/mm²) than the industry standard 1.0 Amp surface mount bridge rectifier.
- Glass passivated chips for high reliability.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CBRHD series types are silicon full wave bridge rectifiers mounted in a durable epoxy surface mount molded case, utilizing glass passivated chips.

MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

		CBRHD -02	CBRHD -04	CBRHD -06	CBRHD -10*	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	200	400	600	1000	V
DC Blocking Voltage	V _R	200	400	600	1000	V
RMS Reverse Voltage	V _{R(RMS)}	140	280	420	700	V
Average Forward Current (T _A =40°C)(1)	I _O			0.5		A
Average Forward Current (T _A =40°C)(2)	I _O			0.8		A
Peak Forward Surge Current	I _{FSM}			30		A
Operating and Storage Junction Temperature	T _J , T _{stg}		-65 to +150			°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V _F	I _F =400mA (Per Diode)			1.0	V
I _R	V _R =Rated V _{RRM}			5.0	μA
I _R	V _R =Rated V _{RRM} , T _A =125°C			500	μA
C _J	V _R =4.0V, f=1.0MHz		20		pF

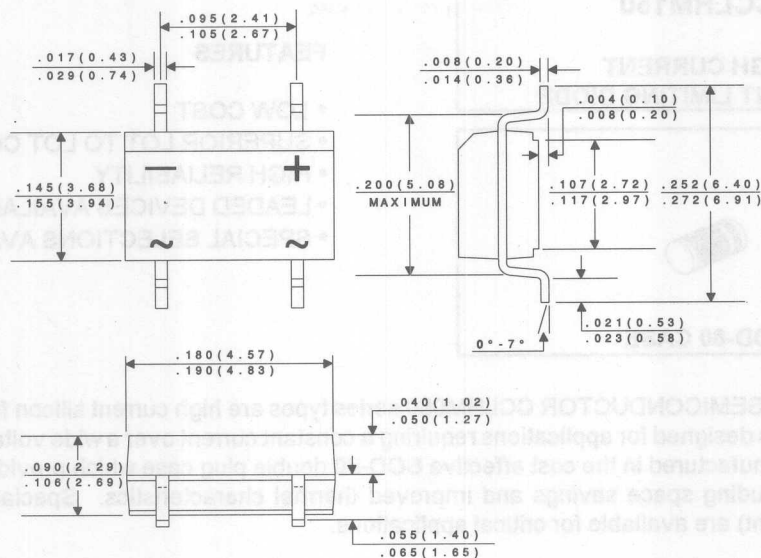
(1) Mounted on a Glass-Epoxy P.C.B.

(2) Mounted on a Ceramic P.C.B.

*Available on special order, please consult factory.

All dimensions in inches (mm).

TOP VIEW



DATA
SHEET

**CCLHM080
THRU
CCLHM150**

**HIGH CURRENT
CURRENT LIMITING DIODE**



SOD-80 CASE

CentralTM
Semiconductor Corp.

FEATURES

- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- LEADED DEVICES AVAILABLE
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION

The CENTRAL SEMICONDUCTOR CCLHM080 series types are high current silicon field effect current regulator diodes designed for applications requiring a constant current over a wide voltage range. These devices are manufactured in the cost effective SOD-80 double plug case which provides many benefits to the user including space savings and improved thermal characteristics. Special selections of I_p (regulator current) are available for critical applications.

MAXIMUM RATINGS ($T_L=75^\circ\text{C}$)

Peak Operating Voltage
Power Dissipation
Operating and Storage
Junction Temperature

SYMBOL

POV

50

UNITS

V

P_D

800

mW

T_J, T_{stg}

-65 to +200

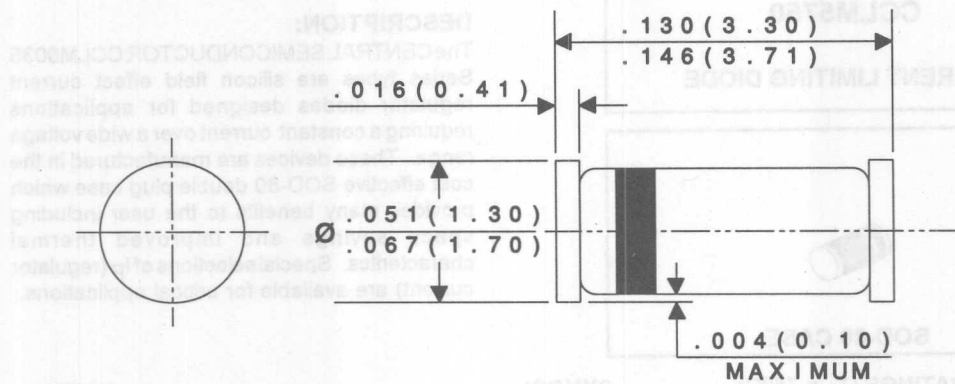
$^\circ\text{C}$

TYPE NO.	REGULATOR CURRENT (1)			DYNAMIC IMPEDANCE	KNEE IMPEDANCE	LIMITING VOLTAGE	TEMPERATURE COEFFICIENT
	$I_p@V_T=25\text{V}$			$Z_T@V_T=25\text{V}$	$Z_K@V_K=6.0\text{V}$	$V_L@I_L=0.8 I_p \text{ MIN}$	TC^*
	mA			$M\Omega$	$K\Omega$	VOLTS	$\%/^\circ\text{C}$
	MIN	NOM	MAX	MIN	MIN	MAX	
CCLHM080	6.56	8.20	9.84	0.32	15	3.1	-0.25 TO -0.45
CCLHM100	8.00	10.0	12.0	0.17	6.0	3.5	-0.25 TO -0.45
CCLHM120	9.60	12.0	14.4	0.08	3.0	3.8	-0.25 TO -0.45
CCLHM150	12.0	15.0	18.0	0.03	2.0	4.3	-0.25 TO -0.45

* The Temperature Coefficient is measured between the following points: $+25^\circ\text{C}$, $+50^\circ\text{C}$.

(1) TESTED USING THE PULSED METHOD. $\left(\text{PULSE WIDTH (ms)} = \frac{27.5}{I_p \text{ NOM (mA)}} \right)$

All dimensions in inches (mm).



Marking Codes:

CENTRAL TYPE NO.	BAND 1*	BAND 2	BAND 3
CCLHM080	BLACK	GREEN	YELLOW
CCLHM100	BLACK	ORANGE	PINK
CCLHM120	BLACK	ORANGE	WHITE
CCLHM150	BLACK	ORANGE	LIGHT BLUE

* Cathode Band

DATA SHEET

**CCLM0035
THRU
CCLM5750**

CURRENT LIMITING DIODE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CCLM0035 Series types are silicon field effect current regulator diodes designed for applications requiring a constant current over a wide voltage range. These devices are manufactured in the cost effective SOD-80 double plug case which provides many benefits to the user including space savings and improved thermal characteristics. Special selections of I_p (regulator current) are available for critical applications.

MAXIMUM RATINGS ($T_L = 75^\circ\text{C}$)

Peak Operating Voltage
Power Dissipation
Operation and Storage
Junction Temperature

SYMBOL

POV
 P_D

T_J, T_{stg}

100

800

-65 to + 200

UNITS

V

mW

$^\circ\text{C}$

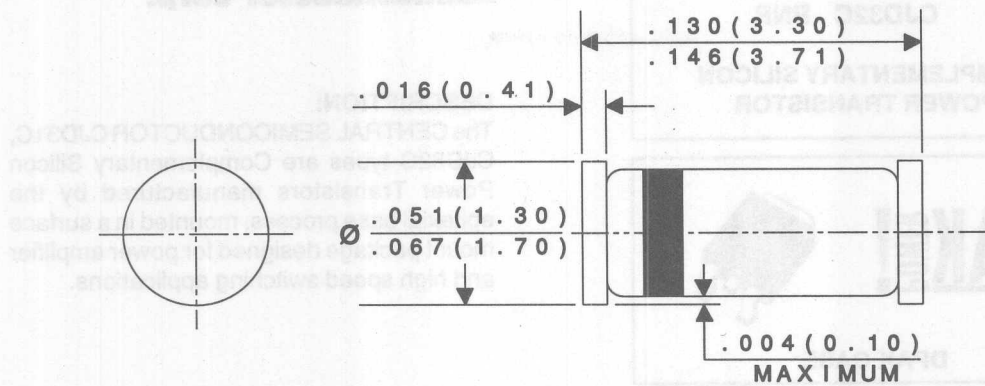
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

TYPE NO.	REGULATOR CURRENT (1)			DYNAMIC IMPEDANCE	KNEE IMPEDANCE	LIMITING VOLTAGE	TEMPERATURE COEFFICIENT
	$I_p @ V_T = 25\text{V}$			$Z_T @ V_T = 25\text{V}$	$Z_K @ V_K = 6.0\text{V}$	$V_L @ I_L = 0.8 I_p \text{ MIN}$	TC^*
	mA			$M\Omega$	$M\Omega$	V	$\%/^\circ\text{C}$
	MIN	NOM	MAX	MIN	MIN	MAX	
CCLM0035	0.010	0.035	0.060	8.0	4.0	0.4	+2.10 TO +0.10
CCLM0130	0.050	0.130	0.210	6.0	2.0	0.6	+2.10 TO +0.10
CCLM0300	0.200	0.310	0.420	4.0	1.0	0.8	+0.40 TO -0.20
CCLM0500	0.400	0.515	0.630	2.0	0.5	1.1	+0.15 TO -0.25
CCLM0750	0.600	0.760	0.920	1.0	0.2	1.4	0.0 TO -0.32
CCLM1000	0.880	1.100	1.320	0.65	0.1	1.7	-0.10 TO -0.37
CCLM1500	1.280	1.500	1.720	0.45	0.07	2.0	-0.13 TO -0.40
CCLM2000	1.680	2.000	2.320	0.35	0.05	2.3	-0.15 TO -0.42
CCLM2700	2.280	2.690	3.100	0.30	0.03	2.7	-0.18 TO -0.45
CCLM3500	3.000	3.550	4.100	0.25	0.02	3.2	-0.20 TO -0.47
CCLM4500	3.900	4.500	5.100	0.20	0.01	3.7	-0.22 TO -0.50
CCLM5750	5.000	5.750	6.500	0.05	0.005	4.5	-0.25 TO -0.53

* The Temperature Coefficient is measured between the following points: $+25^\circ\text{C}$, $+50^\circ\text{C}$.

(1) TESTED USING THE PULSED METHOD. $\left(\text{PULSE WIDTH (ms)} = \frac{27.5}{I_p \text{ NOM (mA)}} \right)$

All dimensions in inches (mm).



Marking Codes:

CENTRAL TYPE NO.	BAND 1*	BAND 2	BAND 3
CCLM0035	BLACK	LIGHT BLUE	WHITE
CCLM0130	BLACK	LIGHT BLUE	PINK
CCLM0300	BLACK	LIGHT BLUE	ORANGE
CCLM0500	BLACK	LIGHT BLUE	GREEN
CCLM0750	BLACK	LIGHT BLUE	DARK BLUE
CCLM1000	BLACK	GREEN	PINK
CCLM1500	BLACK	GREEN	ORANGE
CCLM2000	BLACK	GREEN	GREEN
CCLM2700	BLACK	GREEN	LIGHT BLUE
CCLM3500	BLACK	GREEN	DARK BLUE
CCLM4500	BLACK	GREEN	VIOLET
CCLM5750	BLACK	GREEN	WHITE

* Cathode Band

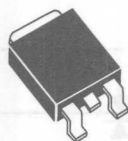
DATA
SHEET

R2

CJD31C NPN
CJD32C PNP

COMPLEMENTARY SILICON
POWER TRANSISTOR

DPAK **POWER!**



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD31C, CJD32C types are Complementary Silicon Power Transistors manufactured by the epitaxial base process, mounted in a surface mount package designed for power amplifier and high speed switching applications.

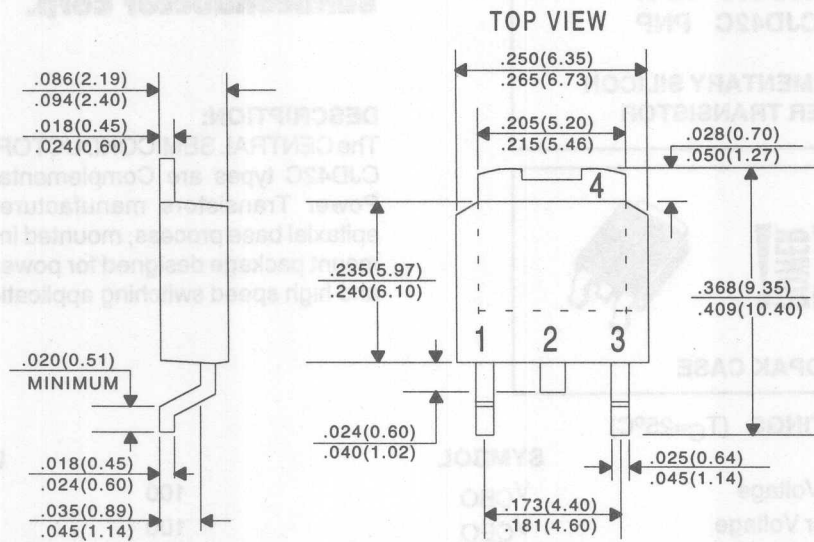
MAXIMUM RATINGS (T_C=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Continuous Collector Current	I _C	3.0	A
Peak Collector Current	I _{CM}	5.0	A
Base Current	I _B	1.0	A
Power Dissipation (T _C =25°C)	P _D	15	W
Power Dissipation (T _A =25°C)	P _D	1.56	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JC}	8.33	°C/W
Thermal Resistance	θ _{JA}	80.1	°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CEO}	V _{CE} =60V		50	μA
I _{CES}	V _{CE} =100V		20	μA
I _{EBO}	V _{EB} =5.0V		1.0	mA
BV _{CEO}	I _C =30mA	100		V
V _{CE(SAT)}	I _C =3.0A, I _B =375mA		1.2	V
V _{BE(ON)}	V _{CE} =4.0V, I _C =3.0A		1.8	V
h _{FE}	V _{CE} =4.0V, I _C =1.0A	25		
h _{FE}	V _{CE} =4.0V, I _C =3.0A	10	50	
f _T	V _{CE} =10V, I _C =500mA, f=1.0MHz	3.0		MHz
h _{fe}	V _{CE} =10V, I _C =500mA, f=1.0kHz	20		

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

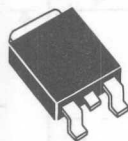
DATA
SHEET

R2

CJD41C NPN
CJD42C PNP

COMPLEMENTARY SILICON
POWER TRANSISTOR

DPAK POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD41C, CJD42C types are Complementary Silicon Power Transistors manufactured by the epitaxial base process, mounted in a surface mount package designed for power amplifier and high speed switching applications.

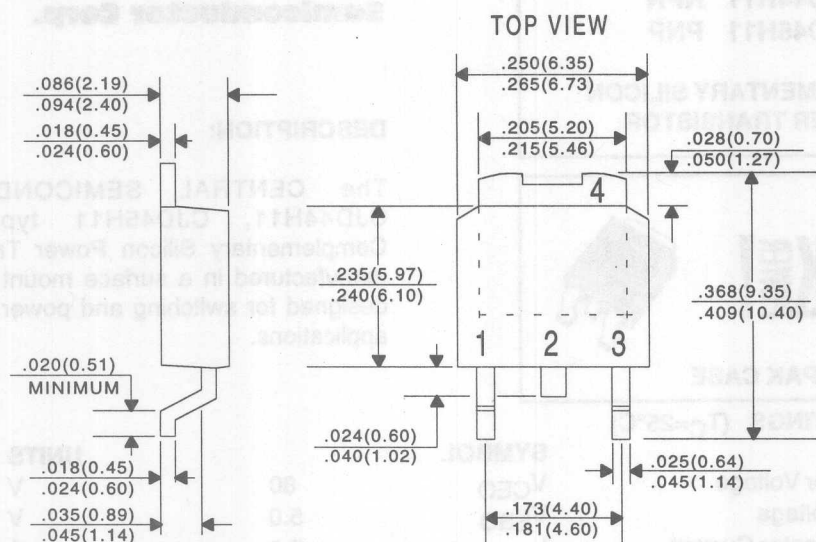
MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Continuous Collector Current	I_C	6.0	A
Peak Collector Current	I_{CM}	10	A
Base Current	I_B	2.0	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	20	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.75	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	6.25	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	71.4	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CEO}	$V_{CE}=60\text{V}$		50	μA
I_{CES}	$V_{CE}=100\text{V}$		10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		500	μA
BV_{CEO}	$I_C=30\text{mA}$	100		V
$V_{CE(SAT)}$	$I_C=6.0\text{A}, I_B=600\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=6.0\text{A}$		2.0	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=300\text{mA}$	30		
h_{FE}	$V_{CE}=4.0\text{V}, I_C=3.0\text{A}$	15	75	
f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1.0\text{MHz}$	3.0		MHz
h_{fe}	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1.0\text{kHz}$	20		

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

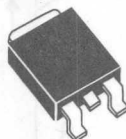
DATA
SHEET

R1

CJD44H11 NPN
CJD45H11 PNP

COMPLEMENTARY SILICON
POWER TRANSISTOR

DPAK POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD44H11, CJD45H11 types are Complementary Silicon Power Transistors manufactured in a surface mount package designed for switching and power amplifier applications.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

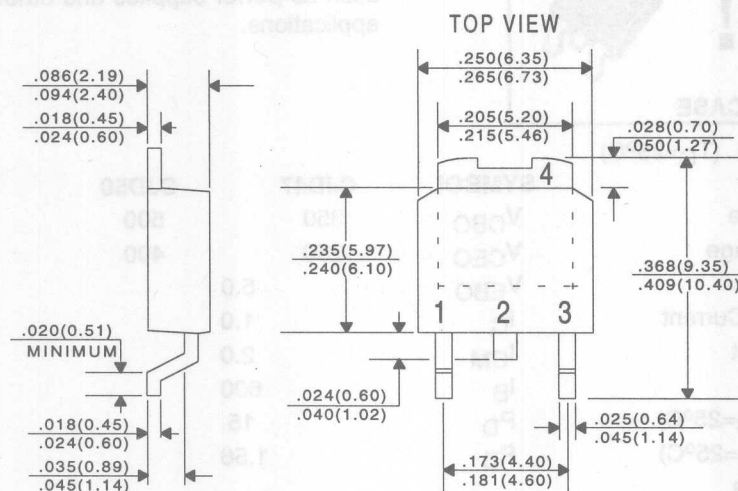
	SYMBOL		UNITS
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Continuous Collector Current	I_C	8.0	A
Peak Collector Current	I_{CM}	16	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	20	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.75	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	6.25	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	71.4	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CES}	$V_{CE}=80\text{V}$			10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$			50	μA
BV_{CEO}	$I_C=30\text{mA}$	80			V
$V_{CE(SAT)}$	$I_C=8.0\text{A}, I_B=400\text{mA}$			1.0	V
$V_{BE(SAT)}$	$I_C=8.0\text{A}, I_B=800\text{mA}$			1.5	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=2.0\text{A}$	60			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=4.0\text{A}$	40			
f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=20\text{MHz}$ (CJD44H11)		60		MHz
f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=20\text{MHz}$ (CJD45H11)		50		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$ (CJD44H11)		120		pF
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$ (CJD45H11)		220		pF
$t_d + t_r$	$I_C=5.0\text{A}, I_{B1}=500\text{mA}$ (CJD44H11)		320		ns
$t_d + t_r$	$I_C=5.0\text{A}, I_{B1}=500\text{mA}$ (CJD45H11)		150		ns

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
t_s	$I_C=5.0A, I_{B1}=I_{B2}=500mA$ (CJD44H11, CJD45H11)		450		ns
t_f	$I_C=5.0A, I_{B1}=I_{B2}=500mA$ (CJD44H11)		130		ns
t_f	$I_C=5.0A, I_{B1}=I_{B2}=500mA$ (CJD45H11)		100		ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

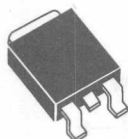
R1

CentralTM Semiconductor Corp.

CJD47
CJD50

NPN SILICON
POWER TRANSISTOR

DPAK **POWER!**



DPAK CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD47, CJD50 types are NPN Silicon Power Transistors manufactured in a surface mount package designed for high voltage applications such as power supplies and other switching applications.

MAXIMUM RATINGS (T_C=25°C)

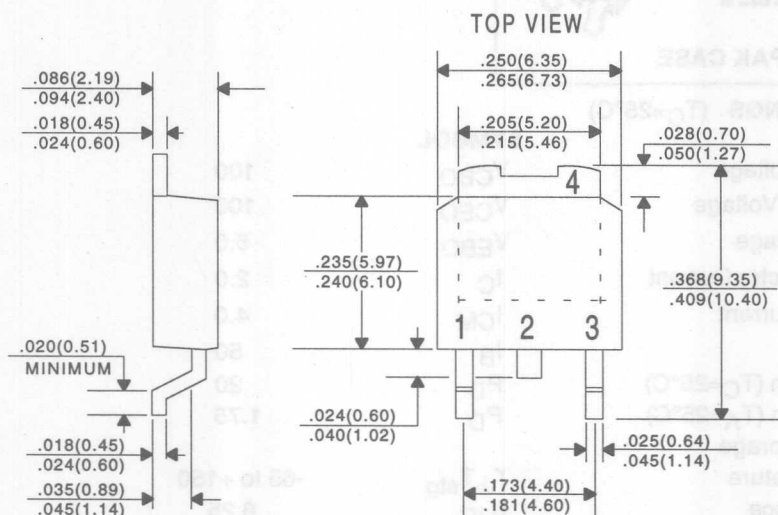
	SYMBOL	CJD47	CJD50	UNITS
Collector-Base Voltage	V _{CB0}	350	500	V
Collector-Emitter Voltage	V _{CE0}	250	400	V
Emitter-Base Voltage	V _{EB0}	5.0		V
Continuous Collector Current	I _C	1.0		A
Peak Collector Current	I _{CM}	2.0		A
Base Current	I _B	600		mA
Power Dissipation (T _C =25°C)	P _D	15		W
Power Dissipation (T _A =25°C)	P _D	1.56		W
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JC}	8.33		°C/W
Thermal Resistance	θ _{JA}	80.1		°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CEO}	V _{CE} =150V (CJD47)		200	μA
I _{CEO}	V _{CE} =300V (CJD50)		200	μA
I _{CES}	V _{CE} =350V (CJD47)		100	μA
I _{CES}	V _{CE} =500V (CJD50)		100	μA
I _{EBO}	V _{EB} =5.0V		1.0	mA
BV _{CEO}	I _C =30mA (CJD47)	250		V
BV _{CEO}	I _C =30mA (CJD50)	400		V
V _{CE(SAT)}	I _C =1.0A, I _B =200mA		1.0	V
V _{BE(ON)}	V _{CE} =10V, I _C =1.0A		1.5	V
h _{FE}	V _{CE} =10V, I _C =300mA	30	150	

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=1.0A$	10		
f_T	$V_{CE}=10V, I_C=200mA, f=2.0MHz$	10		MHz
h_{fe}	$V_{CE}=10V, I_C=200mA, f=1.0kHz$	25		

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

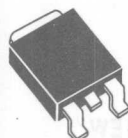
DATA
SHEET

R2

CJD112 NPN
CJD117 PNP

COMPLEMENTARY SILICON
POWER DARLINGTON TRANSISTOR

DPAK POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CJD112, CJD117 types are Complementary Silicon Power Darlington Transistors manufactured in a surface mount package designed for low speed switching and amplifier applications.

MAXIMUM RATINGS (T_C=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Continuous Collector Current	I _C	2.0	A
Peak Collector Current	I _{CM}	4.0	A
Base Current	I _B	50	mA
Power Dissipation (T _C =25°C)	P _D	20	W
Power Dissipation (T _A =25°C)	P _D	1.75	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JC}	6.25	°C/W
Thermal Resistance	θ _{JA}	71.4	°C/W

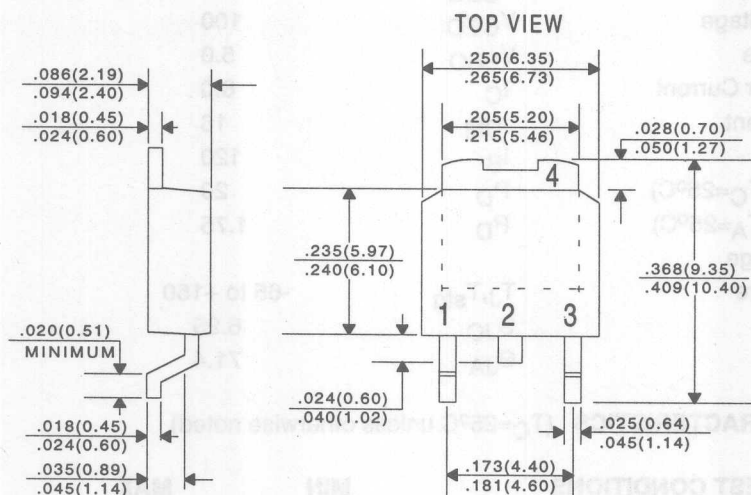
ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CEO}	V _{CE} =50V		20	μA
I _{CEV}	V _{CE} =80V, V _{BE(off)} =1.5V		10	μA
I _{CEV}	V _{CE} =80V, V _{BE(off)} =1.5V, T _C =125°C		500	μA
I _{CBO}	V _{CB} =80V		10	μA
I _{CBO}	V _{CB} =100V		20	μA
I _{EBO}	V _{EB} =5.0V		2.0	mA
BV _{CEO}	I _C =30mA	100		V
V _{CE(SAT)}	I _C =2.0A, I _B =8.0mA		2.0	V
V _{CE(SAT)}	I _C =4.0A, I _B =40mA		3.0	V
V _{BE(SAT)}	I _C =4.0A, I _B =40mA		4.0	V

SYMBOL	TEST CONDITIONS
$V_{BE(ON)}$	$V_{CE}=3.0V, I_C=2.0A$
h_{FE}	$V_{CE}=3.0V, I_C=0.5A$
h_{FE}	$V_{CE}=3.0V, I_C=2.0A$
h_{FE}	$V_{CE}=3.0V, I_C=4.0A$
f_T	$V_{CE}=10V, I_C=750mA, f=1.0MHz$
C_{ob}	$V_{CB}=10V, I_E=0, f=0.1MHz$ (CJD112)
C_{ob}	$V_{CB}=10V, I_E=0, f=0.1MHz$ (CJD117)

MIN	MAX	UNITS
	2.8	V
500		
1000	12000	
200		
25		MHz
	100	pF
	200	pF

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

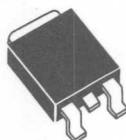
DATA
SHEET

R2

CJD122 NPN
CJD127 PNP

**COMPLEMENTARY SILICON
POWER DARLINGTON TRANSISTOR**

DPAK
POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD122, CJD127 types are Complementary Silicon Power Darlington Transistors manufactured in a surface mount package designed for low speed switching and amplifier applications.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

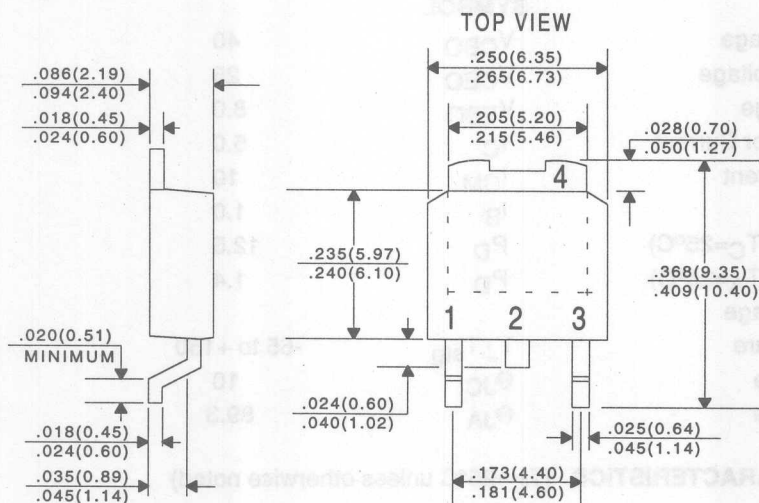
	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Continuous Collector Current	I_C	8.0	A
Peak Collector Current	I_{CM}	16	A
Base Current	I_B	120	mA
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	20	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.75	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	6.25	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	71.4	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CEO}	$V_{CE}=50\text{V}$		10	μA
I_{CEV}	$V_{CE}=100\text{V}, V_{BE(off)}=1.5\text{V}$		10	μA
I_{CEV}	$V_{CE}=100\text{V}, V_{BE(off)}=1.5\text{V}, T_C=125^\circ\text{C}$		500	μA
I_{CBO}	$V_{CB}=100\text{V}$		10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		2.0	mA
BV_{CEO}	$I_C=30\text{mA}$	100		V
$V_{CE(SAT)}$	$I_C=4.0\text{A}, I_B=16\text{mA}$		2.0	V
$V_{CE(SAT)}$	$I_C=8.0\text{A}, I_B=80\text{mA}$		4.0	V
$V_{BE(SAT)}$	$I_C=8.0\text{A}, I_B=80\text{mA}$		4.5	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$V_{BE(ON)}$	$V_{CE}=4.0V, I_C=4.0A$		2.8	V
h_{FE}	$V_{CE}=4.0V, I_C=4.0A$	1000	12000	
h_{FE}	$V_{CE}=4.0V, I_C=8.0A$	100		
f_T	$V_{CE}=4.0V, I_C=3.0A, f=1.0MHz$	4.0		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz (CJD122)$		200	pF
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz (CJD127)$		300	pF
h_{fe}	$V_{CE}=4.0V, I_C=3.0A, f=1.0kHz$	300		

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

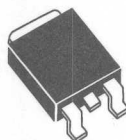
DATA
SHEET

R2

CJD200 NPN
CJD210 PNP

COMPLEMENTARY SILICON
POWER TRANSISTOR

DPAK **POWER!**



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD200, CJD210 types are Complementary Silicon Power Transistors manufactured in a surface mount package designed for high current amplifier applications.

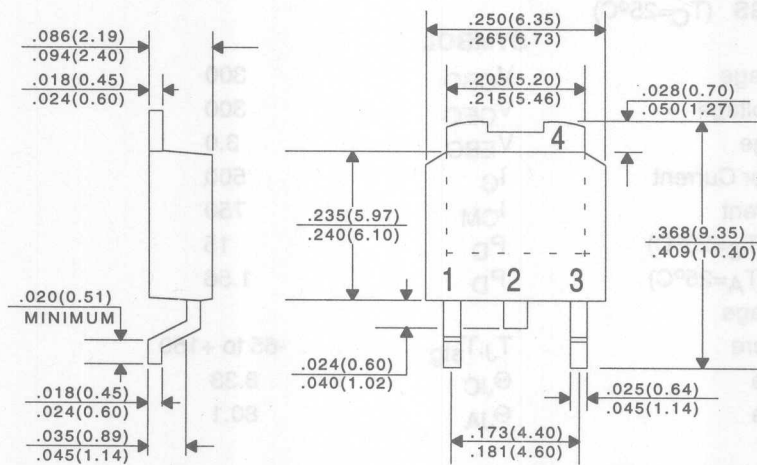
MAXIMUM RATINGS (T_C=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	40	V
Collector-Emitter Voltage	V _{CEO}	25	V
Emitter-Base Voltage	V _{EBO}	8.0	V
Continuous Collector Current	I _C	5.0	A
Peak Collector Current	I _{CM}	10	A
Base Current	I _B	1.0	A
Power Dissipation (T _C =25°C)	P _D	12.5	W
Power Dissipation (T _A =25°C)	P _D	1.4	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JC}	10	°C/W
Thermal Resistance	θ _{JA}	89.3	°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =40V		100	nA
I _{CBO}	V _{CB} =40V, T _C =125°C		100	μA
I _{EBO}	V _{EB} =8.0V		100	nA
BV _{CEO}	I _C =10mA	25		V
V _{CE} (SAT)	I _C =500mA, I _B =50mA		0.3	V
V _{CE} (SAT)	I _C =2.0A, I _B =200mA		0.75	V
V _{CE} (SAT)	I _C =5.0A, I _B =1.0A		1.8	V
V _{BE} (SAT)	I _C =5.0A, I _B =1.0A		2.5	V
V _{BE} (ON)	V _{CE} =1.0V, I _C =2.0A		1.6	V
h _{FE}	V _{CE} =1.0V, I _C =500mA	70		

TOP VIEW



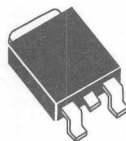
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA SHEET

CJD340 NPN
CJD350 PNP

**COMPLEMENTARY SILICON
POWER TRANSISTOR**

DPAK[®] POWER!



DPAK CASE

**Central
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD340, CJD350 types are Complementary Silicon Power Transistors manufactured in a surface mount package designed for high voltage general purpose applications.

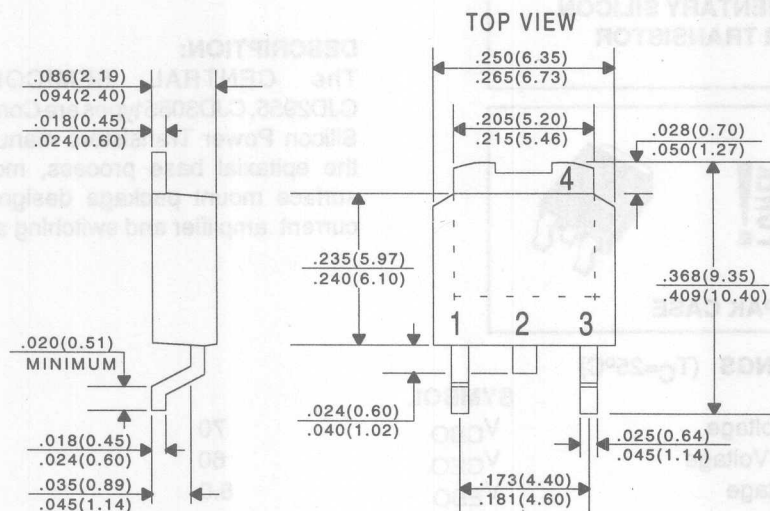
MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	300	V
Collector-Emitter Voltage	V_{CE0}	300	V
Emitter-Base Voltage	V_{EB0}	3.0	V
Continuous Collector Current	I_C	500	mA
Peak Collector Current	I_{CM}	750	mA
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	15	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.56	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	8.33	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	80.1	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CB0}	$V_{CB}=300\text{V}$		100	μA
I_{EB0}	$V_{EB}=3.0\text{V}$		100	μA
BV_{CE0}	$I_C=1.0\text{mA}$	300		V
h_{FE}	$V_{CE}=10\text{V}, I_C=50\text{mA}$	30	240	

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

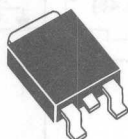
DATA
SHEET

R2

CJD2955 PNP
CJD3055 NPN

COMPLEMENTARY SILICON
POWER TRANSISTOR

DPAK **POWER!**



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD2955, CJD3055 types are Complementary Silicon Power Transistors manufactured by the epitaxial base process, mounted in a surface mount package designed for high current amplifier and switching applications.

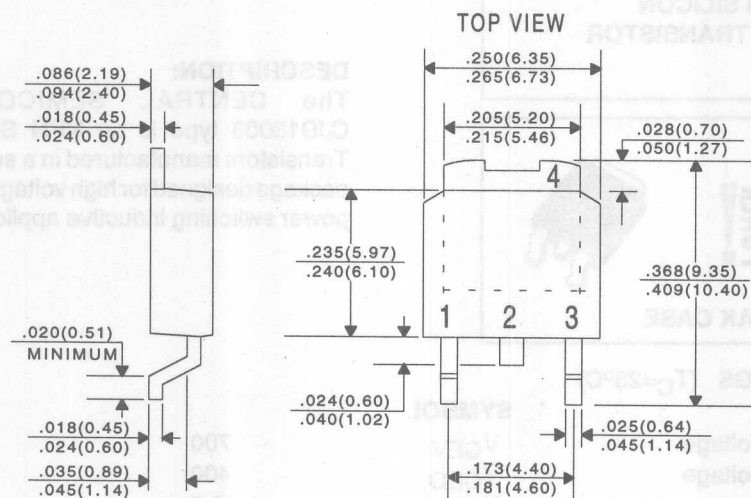
MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	70	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	10	A
Base Current	I_B	6.0	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	20	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.75	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	6.25	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	71.4	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CEO}	$V_{CE}=30\text{V}$		50	μA
I_{CEV}	$V_{CE}=70\text{V}, V_{BE}(\text{off})=1.5\text{V}$		20	μA
I_{CEV}	$V_{CE}=70\text{V}, V_{BE}(\text{off})=1.5\text{V}, T_C=150^\circ\text{C}$		2.0	mA
I_{CBO}	$V_{CB}=70\text{V}$		20	μA
I_{CBO}	$V_{CB}=70\text{V}, T_C=150^\circ\text{C}$		2.0	mA
I_{EBO}	$V_{EB}=5.0\text{V}$		500	μA
BV_{CEO}	$I_C=30\text{mA}$	60		V
$V_{CE}(\text{SAT})$	$I_C=4.0\text{A}, I_B=400\text{mA}$		1.1	V
$V_{CE}(\text{SAT})$	$I_C=10\text{A}, I_B=3.3\text{A}$		8.0	V
$V_{BE}(\text{ON})$	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$		1.8	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$	20	100	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=10\text{A}$	5.0		
f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1.0\text{MHz}$	2.0		MHz

All dimensions in inches (mm).



LEAD CODE:

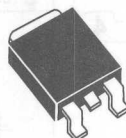
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CJD13003
NPN SILICON
POWER TRANSISTOR

DPAK **POWER!**



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CJD13003 type is an NPN Silicon Power Transistors manufactured in a surface mount package designed for high voltage, high speed power switching inductive applications.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Emitter Voltage	V_{CEV}	700	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	9.0	V
Continuous Collector Current	I_C	1.5	A
Peak Collector Current	I_{CM}	3.0	A
Continuous Base Current	I_B	750	mA
Peak Base Current	I_{BM}	1.5	A
Continuous Emitter Current	I_E	2.25	A
Peak Emitter Current	I_{EM}	4.5	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	15	W
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.56	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	8.33	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	80.1	$^\circ\text{C/W}$

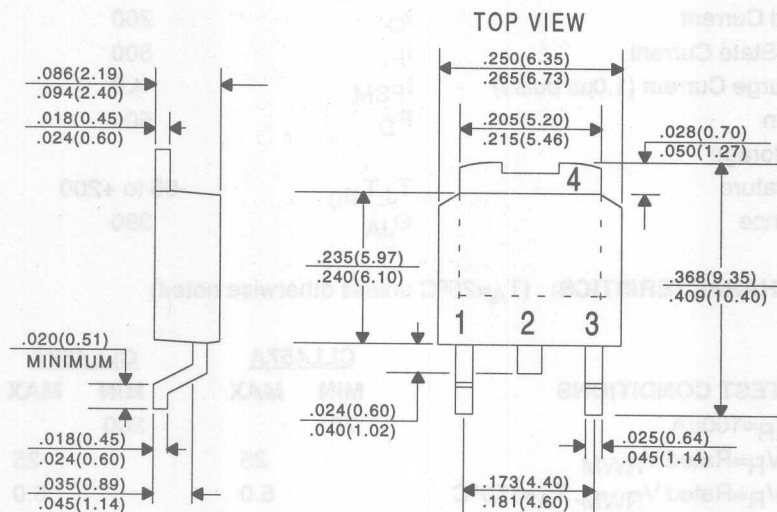
ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CEV}	$V_{CE}=700\text{V}, V_{BE(\text{off})}=1.5\text{V}$			100	μA
I_{CEV}	$V_{CE}=700\text{V}, V_{BE(\text{off})}=1.5\text{V}, T_C=100^\circ\text{C}$			2.0	mA
I_{EBO}	$V_{EB}=9.0\text{V}$			1.0	mA
BV_{CEO}	$I_C=10\text{mA}$	400			V
$V_{CE(\text{SAT})}$	$I_C=500\text{mA}, I_B=100\text{mA}$			0.5	V
$V_{CE(\text{SAT})}$	$I_C=1.0\text{A}, I_B=250\text{mA}$			1.0	V
$V_{CE(\text{SAT})}$	$I_C=1.5\text{A}, I_B=500\text{mA}$			3.0	V
$V_{CE(\text{SAT})}$	$I_C=1.0\text{A}, I_B=250\text{mA}, T_C=100^\circ\text{C}$			1.0	V

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$V_{BE(SAT)}$	$I_C=500mA, I_B=100mA$			1.0	V
$V_{BE(SAT)}$	$I_C=1.0A, I_B=250mA$			1.2	V
$V_{BE(SAT)}$	$I_C=1.0A, I_B=250mA, T_C=100^\circ C$			1.1	V
h_{FE}	$V_{CE}=2.0V, I_C=500mA$	8.0		40	
h_{FE}	$V_{CE}=2.0V, I_C=1.0A$	5.0		25	
f_T	$V_{CE}=10V, I_C=100mA, f=1.0MHz$	4.0			MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=0.1MHz$		20		pF
t_d	$V_{CC}=125V, I_C=1.0A, I_{B1}=I_{B2}=200mA (1)$			0.1	μs
t_r	$V_{CC}=125V, I_C=1.0A, I_{B1}=I_{B2}=200mA (1)$			1.0	μs
t_s	$V_{CC}=125V, I_C=1.0A, I_{B1}=I_{B2}=200mA (1)$			4.0	μs
t_f	$V_{CC}=125V, I_C=1.0A, I_{B1}=I_{B2}=200mA (1)$			0.7	μs

(1) $t_p=25\mu s$, Duty Cycle $\leq 1\%$

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

R2

CLL457A
CLL459A

LOW LEAKAGE
SILICON DIODE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL457A, CLL459A types are silicon planar diodes, manufactured in a hermetically sealed glass surface mount package, designed for low leakage applications.

Marking Code: Cathode band.

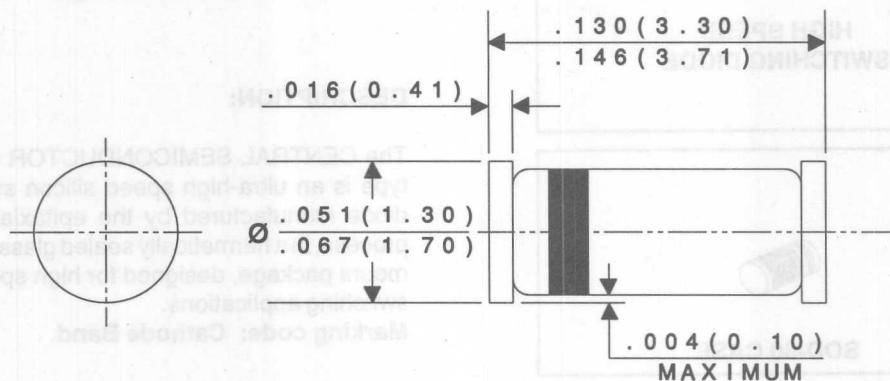
MAXIMUM RATINGS: (T_A=25°C)

	SYMBOL	CLL457A	CLL459A	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	70	200	V
Peak Working Reverse Voltage	V _{RWM}	60	175	V
Average Forward Current	I _O		200	mA
Forward Steady-State Current	I _F		500	mA
Peak Forward Surge Current (1.0μs pulse)	I _{FSM}		4.0	A
Power Dissipation	P _D		500	mW
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +200		°C
Thermal Resistance	Θ _{JA}	350		°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CLL457A		CLL459A		UNITS
		MIN	MAX	MIN	MAX	
BV _R	I _R =100μA	70		200		V
I _R	V _R =Rated V _{RWM}		25		25	nA
I _R	V _R =Rated V _{RWM} , T _A =150°C		5.0		5.0	μA
V _F	I _F =100mA		1.0		1.0	V
C _T	V _R =0, f=1.0MHz		6.0		6.0	pF

All dimensions in inches (mm).



MAXIMUM RATINGS (T _A =25°C)		ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)	
SYMBOL	UNIT	SYMBOL	UNIT
V _R	V	V _R	V
V _{RRM}	V	V _R	V
I _F	mA	I _F	mA
I _{FRM}	mA	I _F	mA
I _{FSM}	mA	I _F	mA
I _{FSM}	mA	I _F	mA
P _D	mW	P _D	mW
T _J	°C	T _J	°C
R _{θJA}	°C/W	R _{θJA}	°C/W

TEST CONDITIONS		ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)	
SYMBOL	UNIT	SYMBOL	UNIT
V _{BR}	V	V _{BR}	V
I _R	mA	I _R	mA
I _R	mA	I _R	mA
V _F	V	V _F	V
Q _T	ns	Q _T	ns
t _w	ns	t _w	ns

DATA
SHEET

R1

HIGH SPEED SWITCHING DIODE



SOD-80 CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL914 type is an ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in a hermetically sealed glass surface mount package, designed for high speed switching applications.

Marking code: Cathode Band.

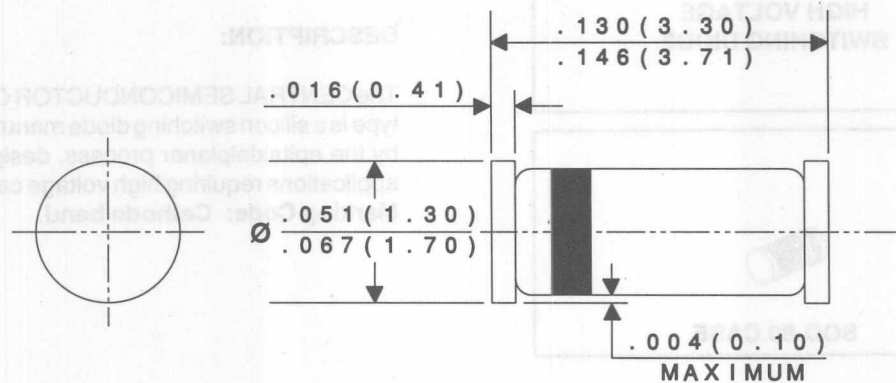
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	75	V
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	250	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	500	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	350	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_{BR}	$I_R=100\ \mu\text{A}$	100		V
I_R	$V_R=20\text{V}$		25	nA
I_R	$V_R=75\text{V}$		5.0	μA
V_F	$I_F=10\text{mA}$		1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\ \Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



UNIT	SYMBOL	MAXIMUM RATING (T _A =25°C)
V	V _R	250
V	V _{RRM}	250
mA	I _O	200
mA	I _F	250
mA	I _{FRM}	825
mA	I _{SM}	4000
mA	I _{FSM}	1000
mW	P _D	500
°C	T _J , T _{stg}	-55 to +200
°C/W	θ _{JA}	350

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

UNIT	MAX	MIN	TEST CONDITIONS	SYMBOL
V		250	I _F =100mA	B _{VR}
mA	100		V _F =200V	I _R
μA	100		V _F =200V, T _A =-100°C	I _R
V	1.00		I _F =100mA	V _F
V	1.25		I _F =200mA	V _F
ps	8.0		V _F =0, f=1 MHz	C _T
ns	80		I _F =100mA, RECOV. TO 3.0mA, P _F =100W	t _r

DATA
SHEET

R2

CLL2003

HIGH VOLTAGE
SWITCHING DIODE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL2003 type is a silicon switching diode manufactured by the epitaxial planar process, designed for applications requiring high voltage capability.
Marking Code: Cathode band.

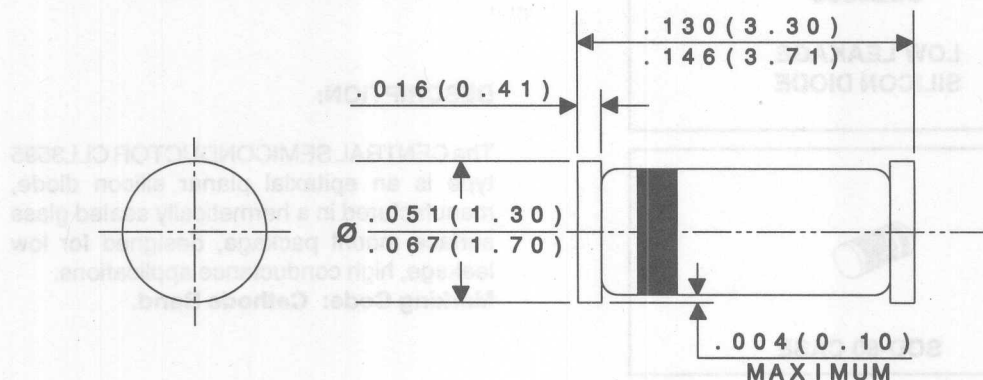
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	250	V
Peak Repetitive Reverse Voltage	V_{RRM}	250	V
Average Forward Current	I_O	200	mA
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	625	mA
Forward Surge Current, $t_p=1\ \mu\text{s}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{s}$	I_{FSM}	1000	mA
Power Dissipation	P_D	500	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	350	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
BV_R	$I_R=100\ \mu\text{A}$	250		V
I_R	$V_R=200\text{V}$		100	nA
I_R	$V_R=200\text{V}, T_A=150^{\circ}\text{C}$		100	μA
V_F	$I_F=100\text{mA}$		1.00	V
V_F	$I_F=200\text{mA}$		1.25	V
C_T	$V_R=0, f=1\ \text{MHz}$		5.0	pF
t_{rr}	$I_F=I_R=30\text{mA}, \text{RECOV. TO } 3.0\text{mA}, R_L=100\ \Omega$		50	ns

All dimensions in inches (mm).



UNITS	SYMBOL	MAXIMUM RATING: (T _A =25°C)
V	V _{RRM}	Peak Repetitive Reverse Voltage
V	V _{WM}	Peak Working Reverse Voltage
mA	I _C	Average Forward Current
mA	I _F	Forward Steady-State Current
mA	I _{FSM}	Recurrent Peak Forward Current
mA	I _{FSM}	Peak Forward Surge Current (1.0 pulse)
A	I _{FSM}	Peak Forward Surge Current (1.0 pulse)
mW	P _D	Power Dissipation
°C	T _J	Operating and Storage Junction Temperature
°C/W	θ _{JA}	Thermal Resistance

UNITS	MAX	MIN	TEST CONDITIONS	SYMBOL
V		150	I _F =100μA	B _V
mA	1.0		V _P =18V	I _P
mA	800		V _P =125V, T _A =125°C	I _P
μA	8.0		V _P =125V, T _A =125°C	I _P
mA	800		V _P =30V, T _A =125°C	I _P
V	0.38	0.32	I _F =1.0mA	V _F
V	0.75	0.60	I _F =5.0mA	V _F
V	0.90	0.65	I _F =10mA	V _F
V	0.66	0.75	I _F =50mA	V _F
V	0.62	0.73	I _F =100mA	V _F
V	1.00	0.82	I _F =200mA	V _F

DATA
SHEET

R2

CLL3595

LOW LEAKAGE
SILICON DIODE



SOD-80 CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL3595 type is an epitaxial planar silicon diode, manufactured in a hermetically sealed glass surface mount package, designed for low leakage, high conductance applications.

Marking Code: Cathode Band.

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Peak Repetitive Reverse Voltage
Peak Working Reverse Voltage
Average Forward Current
Forward Steady-State Current
Recurrent Peak Forward Current
Peak Forward Surge Current (1.0s pulse)
Peak Forward Surge Current (1.0 μs pulse)
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{RRM}
 V_{RWM}
 I_O
 I_F
 i_f
 I_{FSM}
 I_{FSM}
 P_D

150
125
150
225
600
500
4.0
500

UNITS

V
V
mA
mA
mA
mA
A
mW

T_J, T_{stg}
 Θ_{JA}

-65 to +200
350

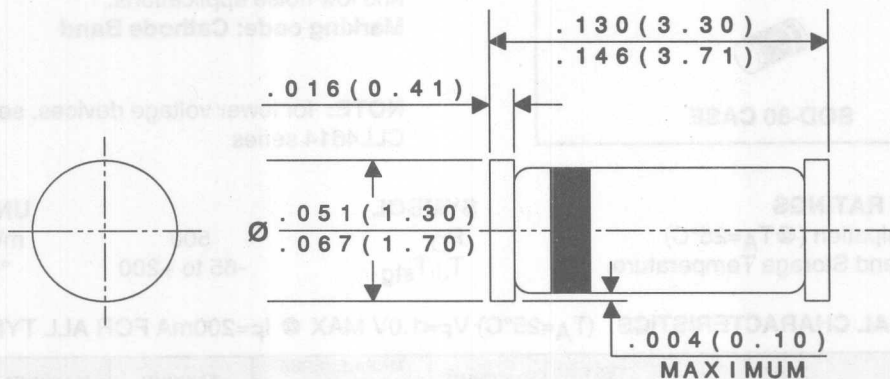
$^\circ\text{C}$
 $^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
BV_R	$I_R=100\mu\text{A}$	150		V
I_R	$V_R=125\text{V}$		1.0	nA
I_R	$V_R=125\text{V}, T_A=125^\circ\text{C}$		500	nA
I_R	$V_R=125\text{V}, T_A=150^\circ\text{C}$		3.0	μA
I_R	$V_R=30\text{V}, T_A=125^\circ\text{C}$		300	nA
V_F	$I_F=1.0\text{mA}$	0.52	0.68	V
V_F	$I_F=5.0\text{mA}$	0.60	0.75	V
V_F	$I_F=10\text{mA}$	0.65	0.80	V
V_F	$I_F=50\text{mA}$	0.75	0.88	V
V_F	$I_F=100\text{mA}$	0.79	0.92	V
V_F	$I_F=200\text{mA}$	0.83	1.00	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
C_T	$V_R=0, f=1.0\text{MHz}$		8.0	pF
t_{rr}	$V_R=3.5\text{V}, I_f=10\text{mA}, R_L=1.0\text{k}\Omega$		3.0	μs

All dimensions in inches (mm).



DATA
SHEET

R1



CLL4099
THRU
CLL4125

LOW NOISE ZENER DIODE
6.8 VOLTS THRU 47 VOLTS
500mW, 5% TOLERANCE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CLL4099 Series types are high quality Silicon Zener Diodes designed for low leakage, low current and low noise applications.

Marking code: Cathode Band

NOTE: for lower voltage devices, see CLL4614 series

MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
Operating and Storage Temperature

SYMBOL

P_D
 T_J, T_{stg}

500
-65 to +200

UNIT

mW
 $^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$) $V_F=1.0\text{V MAX}$ @ $I_F=200\text{mA}$ FOR ALL TYPES.

TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDENCE	MAX REVERSE LEAKAGE CURRENT		MAXIMUM ZENER CURRENT	MAXIMUM NOISE DENSITY
	$V_Z @ I_{ZT}$			I_{ZT}	$Z_{ZT} @ I_{ZT}$	$I_R @ V_R$		I_{ZM}	$N_D @ I_{ZT}$
	MIN	NOM	MAX						
	VOLTS	VOLTS	VOLTS	μA	Ω	μA	VOLTS	mA	$\mu\text{V}/\sqrt{\text{Hz}}$
CLL4099*	6.460	6.8	7.140	250	200	10	5.2	35.0	40
CLL4100*	7.125	7.5	7.865	250	200	10	5.7	31.8	40
CLL4101*	7.790	8.2	8.610	250	200	1.0	6.3	29.0	40
CLL4102*	8.265	8.7	9.135	250	200	1.0	6.7	27.4	40
CLL4103*	8.645	9.1	9.555	250	200	1.0	7.0	26.2	40
CLL4104*	9.500	10	10.50	250	200	1.0	7.6	24.8	40
CLL4105*	10.45	11	11.55	250	200	0.05	8.5	21.6	40
CLL4106*	11.40	12	12.60	250	200	0.05	9.2	20.4	40
CLL4107*	12.35	13	13.65	250	200	0.05	9.9	19.0	40
CLL4108*	13.30	14	14.70	250	200	0.05	10.7	17.5	40
CLL4109*	14.25	15	15.75	250	100	0.05	11.4	16.3	40
CLL4110*	15.20	16	16.80	250	100	0.05	12.2	15.4	40
CLL4111*	16.15	17	17.85	250	100	0.05	13.0	14.5	40
CLL4112*	17.10	18	18.90	250	100	0.05	13.7	13.2	40
CLL4113*	18.05	19	19.95	250	150	0.05	14.5	12.5	40
CLL4114*	19.0	20	21.00	250	150	0.01	15.2	11.9	40
CLL4115*	20.90	22	23.10	250	150	0.01	16.8	10.8	40
CLL4116*	22.80	24	25.20	250	150	0.01	18.3	9.9	40

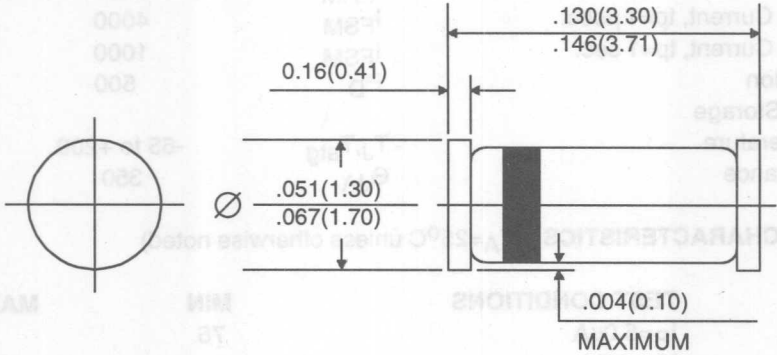
* Available on special order only, please consult factory.

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$) $V_F=1.0\text{V MAX @ } I_F=200\text{mA}$ FOR ALL TYPES.

TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDENCE	MAX REVERSE LEAKAGE CURRENT		MAXIMUM ZENER CURRENT	MAXIMUM NOISE DENSITY			
	$V_Z @ I_{ZT}$					I_{ZT}	$Z_{ZT} @ I_{ZT}$			$I_R @ V_R$	I_{ZM}	$N_D @ I_{ZT}$
	MIN	NOM	MAX									
	VOLTS	VOLTS	VOLTS										$\mu A$	$\Omega$	$\mu A$	VOLTS	mA	$\mu V / \sqrt{Hz}$
CLL4117*	23.75	25	26.25	250	150	0.01	19.0	9.5	40			
CLL4118*	25.65	27	28.35	250	150	0.01	20.5	8.8	40			
CLL4119*	26.60	28	29.40	250	200	0.01	21.3	8.5	40			
CLL4120*	28.50	30	31.50	250	200	0.01	22.8	7.9	40			
CLL4121*	31.35	33	34.65	250	200	0.01	25.1	7.2	40			
CLL4122*	34.20	36	37.80	250	200	0.01	27.4	6.6	40			
CLL4123*	37.05	39	40.95	250	200	0.01	29.7	6.1	40			
CLL4124*	40.85	43	45.15	250	250	0.01	32.7	5.5	40			
CLL4125*	44.65	47	49.35	250	250	0.01	35.8	5.1	40			

* Available on special order only, please consult factory.

All Dimensions in Inches (mm).



DATA SHEET

CLL4150

**HIGH SPEED
SWITCHING DIODE**



SOD-80 CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL4150 type is an ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in a hermetically sealed glass surface mount package, designed for high speed switching applications.

Marking Code: Cathode Band.

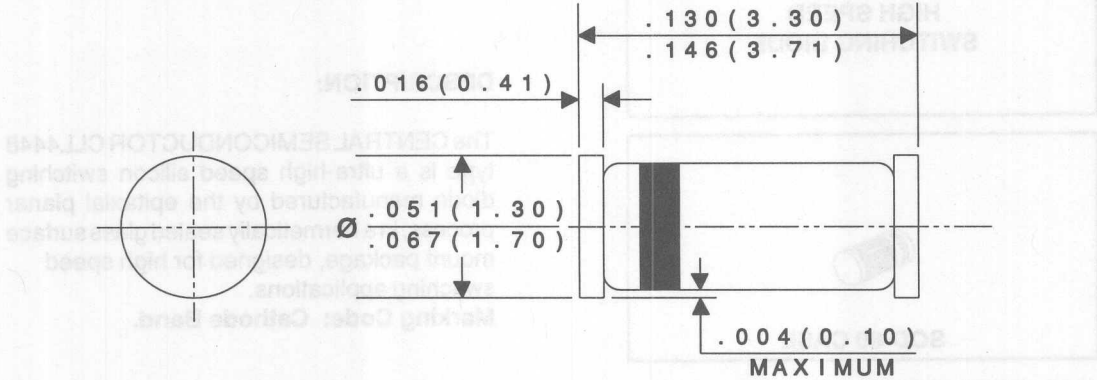
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	50	V
Peak Repetitive Reverse Voltage	V_{RRM}	50	V
Continuous Forward Current	I_F	300	mA
Peak Repetitive Forward Current	I_{FRM}	600	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	500	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Thermal Resistance	Θ_{JA}	350	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
BV_R	$I_R=5.0\ \mu\text{A}$	75		V
I_R	$V_R=50\text{V}$		100	nA
V_F	$I_F=1.0\text{mA}$	0.54	0.62	V
V_F	$I_F=10\text{mA}$	0.66	0.74	V
V_F	$I_F=50\text{mA}$	0.76	0.86	V
V_F	$I_F=100\text{mA}$	0.82	0.92	V
V_F	$I_F=200\text{mA}$	0.87	1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\ \Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



UNITS	SYMBOL	MAXIMUM RATING (T _A =25°C)
V	V _R	Continuous Reverse Voltage
V	V _{RRM}	Peak Repetitive Reverse Voltage
mA	I _F	Continuous Forward Current
mA	I _{FRM}	Peak Repetitive Forward Current
mA	I _{FSM}	Forward Surge Current, t _p ≤ 1 sec
mA	P _{FM}	Forward Surge Power, t _p ≤ 1 sec
W	P _D	Power Dissipation
°C	T _J	Operating and Storage
°C	T _J	Junction Temperature
°C	T _A	Thermal Resistance

UNITS	TEST CONDITIONS	SYMBOL
V	I _F = 0.1A	V _{BI}
V	I _F = 0.1A	V _{BR}
mA	V _R = 20V	I _R
V	I _F = 0.1A	V _F
V	I _F = 100mA	V _F
W	V _R = 0, t _p = 100μs	P _T
ns	I _F = 10mA, R _{θJA} = 100°C/W, t _p = 1.0mA	t _r

DATA SHEET

CLL4448
HIGH SPEED
SWITCHING DIODE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL4448 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in a hermetically sealed glass surface mount package, designed for high speed switching applications.

Marking Code: Cathode Band.

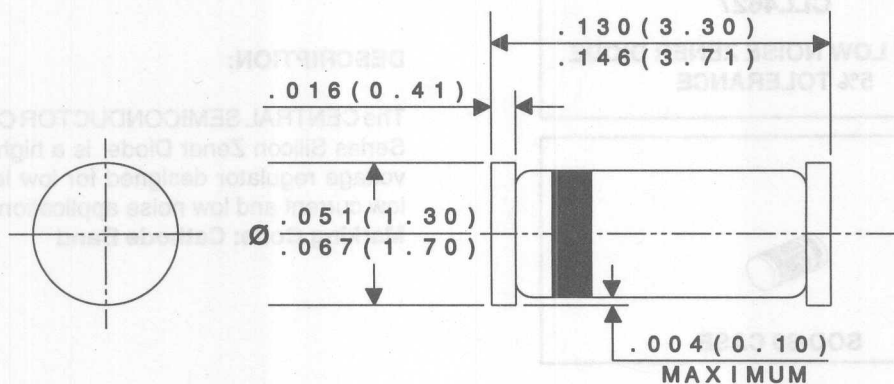
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	75	V
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	250	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	500	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	350	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_{BR}	$I_R=5.0\ \mu\text{A}$	75		V
V_{BR}	$I_R=100\ \mu\text{A}$	100		V
I_R	$V_R=20\text{V}$		25	nA
V_F	$I_F=5.0\text{mA}$	0.62	0.72	V
V_F	$I_F=100\text{mA}$		1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\ \Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



UNIT	SYMBOL	ABSOLUTE MAXIMUM RATINGS				
mW	P _D	Power Dissipation (at T _A = 25°C)				
°C	T _{avg}	Operating and Storage Temperature				
800						
-65 to +200						
ELECTRICAL CHARACTERISTICS						
(T _A = 25°C) V _F = 1.0V MAX @ I _F = 200mA FOR ALL TYPES						
Type No.	V _F (V)	I _F (mA)	I _{avg} (mA)	I _{peak} (mA)	P _D (mW)	T _J (mm)
CL14814	1.5	250	100	100	150	1.0
CL14815	2.0	250	100	100	110	1.0
CL14816	2.5	250	100	100	100	1.0
CL14817	3.0	250	100	100	95	1.0
CL14818	3.5	250	100	100	90	1.0
CL14819	4.0	250	100	100	85	1.0
CL14820	4.5	250	100	100	80	1.0
CL14821	5.0	250	100	100	75	1.0
CL14822	5.5	250	100	100	70	1.0
CL14823	6.0	250	100	100	65	1.0
CL14824	6.5	250	100	100	60	1.0
CL14825	7.0	250	100	100	55	1.0
CL14826	7.5	250	100	100	50	1.0
CL14827	8.0	250	100	100	45	1.0
CL14828	8.5	250	100	100	40	1.0
CL14829	9.0	250	100	100	35	1.0
CL14830	9.5	250	100	100	30	1.0
CL14831	10.0	250	100	100	25	1.0
CL14832	10.5	250	100	100	20	1.0
CL14833	11.0	250	100	100	15	1.0
CL14834	11.5	250	100	100	10	1.0
CL14835	12.0	250	100	100	5	1.0

DATA
SHEET

R2

THRU CLL4627

500mW LOW NOISE ZENER DIODE
5% TOLERANCE



SOD-80 CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL4614 Series Silicon Zener Diode is a high quality voltage regulator designed for low leakage, low current and low noise applications.

Marking Code: Cathode Band

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^\circ\text{C}$)
Operating and Storage Temperature

SYMBOL

P_D
 T_J, T_{stg}

500
-65 to +200

UNITS

mW
 $^\circ\text{C}$

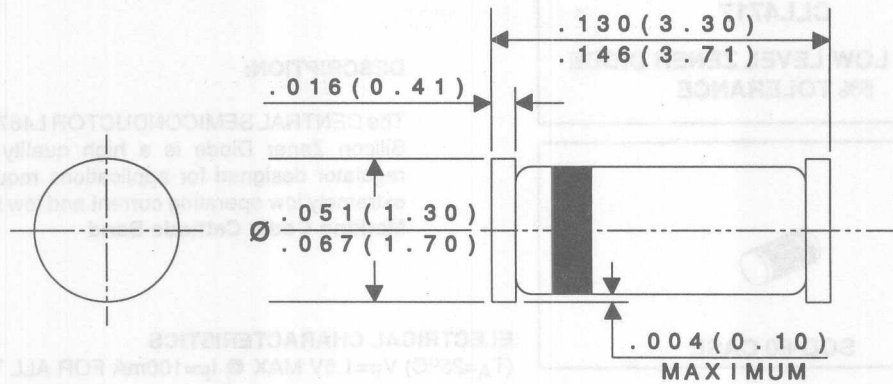
ELECTRICAL CHARACTERISTICS

($T_A=25^\circ\text{C}$) $V_F=1.0\text{V MAX @ } I_F = 200\text{mA FOR ALL TYPES.}$

Type No.	Zener Voltage	Test Current	Maximum Zener Impedance	Maximum Reverse Leakage Current		Maximum Zener Current	Maximum Noise Density
	$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$I_R @ V_R$		I_{ZM}	$N_D @ I_{ZT}=250\mu\text{A}$
	VOLTS	μA	Ω	μA	VOLTS	mA	$\mu\text{V}/\sqrt{\text{Hz}}$
CLL4614*	1.8	250	1200	7.5	1.0	120	1.0
CLL4615*	2.0	250	1250	5.0	1.0	110	1.0
CLL4616*	2.2	250	1300	4.0	1.0	100	1.0
CLL4617*	2.4	250	1400	2.0	1.0	95	1.0
CLL4618*	2.7	250	1500	1.0	1.0	90	1.0
CLL4619*	3.0	250	1600	0.8	1.0	85	1.0
CLL4620*	3.3	250	1650	7.5	1.5	80	1.0
CLL4621*	3.6	250	1700	7.5	2.0	75	1.0
CLL4622*	3.9	250	1650	5.0	2.0	70	1.0
CLL4623*	4.3	250	1600	4.0	2.0	65	1.0
CLL4624*	4.7	250	1550	10	3.0	60	1.0
CLL4625*	5.1	250	1500	10	3.0	55	2.0
CLL4626*	5.6	250	1400	10	4.0	50	4.0
CLL4627*	6.2	250	1200	10	5.0	45	5.0

* Available on special order; consult factory.

All dimensions in inches (mm).



Part No.	Rev.	QTY.	UOM.	DESCRIPTION	DATE	BY	CHKD.	APPD.
CLL-1001	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1002	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1003	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1004	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1005	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1006	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1007	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1008	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1009	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1010	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1011	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1012	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1013	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1014	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1015	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1016	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1017	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1018	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1019	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1020	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1021	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1022	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1023	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1024	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1025	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1026	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1027	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1028	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1029	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1030	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1031	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1032	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1033	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1034	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1035	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1036	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1037	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1038	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1039	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1040	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1041	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1042	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1043	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1044	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1045	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1046	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1047	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1048	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1049	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789
CLL-1050	1.0	100	EA	100% TESTED	10/10/00	J.123	J.456	J.789

DATA
SHEET

R2

CLL4678
THRU
CLL4717

500mW LOW LEVEL ZENER DIODE
5% TOLERANCE



SOD-80 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR L4678 Series Silicon Zener Diode is a high quality voltage regulator designed for applications requiring an extremely low operating current and low leakage. Marking Code: Cathode Band

ELECTRICAL CHARACTERISTICS

(T_A=25°C) V_F=1.5V MAX @ I_F=100mA FOR ALL TYPES

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ T_A = 50°C)
Operating and Storage Temperature

SYMBOL

P_D 500
T_J, T_{STG} -65 to +200

UNITS

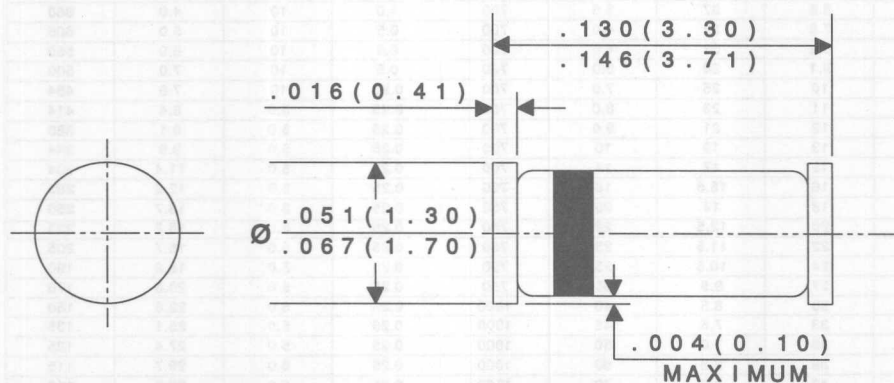
mW
°C

Type No.	Nominal Zener Voltage	Test Current	Maximum Reverse Leakage Current		Maximum Voltage Change*	Maximum Zener Current
	V _Z @ I _{ZT}	I _{ZT}	I _R @ V _R		ΔV _Z	I _{ZM}
	Volts	μA	μA	Volts	Volts	mA
CLL4678	1.8	50	7.5	1.0	0.70	120.0
CLL4679	2.0	50	5.0	1.0	0.70	110.0
CLL4680	2.2	50	4.0	1.0	0.75	100.0
CLL4681	2.4	50	2.0	1.0	0.80	95.0
CLL4682	2.7	50	1.0	1.0	0.85	90.0
CLL4683	3.0	50	0.8	1.0	0.90	85.0
CLL4684	3.3	50	7.5	1.5	0.95	80.0
CLL4685	3.6	50	7.5	2.0	0.95	75.0
CLL4686	3.9	50	5.0	2.0	0.97	70.0
CLL4687	4.3	50	4.0	2.0	0.99	65.0
CLL4688	4.7	50	10	3.0	0.99	60.0
CLL4689	5.1	50	10	3.0	0.97	55.0
CLL4690	5.6	50	10	4.0	0.96	50.0
CLL4691	6.2	50	10	5.0	0.95	45.0
CLL4692	6.8	50	10	5.1	0.90	35.0
CLL4693	7.5	50	10	5.7	0.75	31.8
CLL4694	8.2	50	1.0	6.2	0.50	29.0
CLL4695	8.7	50	1.0	6.6	0.10	27.4
CLL4696	9.1	50	1.0	6.9	0.08	26.2
CLL4697	10	50	1.0	7.6	0.10	24.8
CLL4698	11	50	0.05	8.4	0.11	21.6
CLL4699	12	50	0.05	9.1	0.12	20.4
CLL4700	13	50	0.05	9.8	0.13	19.0
CLL4701	14	50	0.05	10.6	0.14	17.5
CLL4702	15	50	0.05	11.4	0.15	16.3

* ΔV_Z=V_Z@100μA MINUS V_Z@10μA.

Type No.	Nominal Zener Voltage	Test Current	Maximum Reverse Leakage Current		Maximum Voltage Change*	Maximum Zener Current
	$V_Z @ I_{ZT}$	I_{ZT}	$I_R @ V_R$		ΔV_Z	I_{ZM}
	Volts	μA	μA	Volts	Volts	mA
CLL4703	16	50	0.05	12.1	0.16	15.4
CLL4704	17	50	0.05	12.9	0.17	14.5
CLL4705	18	50	0.05	13.6	0.18	13.2
CLL4706	19	50	0.05	14.4	0.19	12.5
CLL4707	20	50	0.01	15.2	0.20	11.9
CLL4708	22	50	0.01	16.7	0.22	10.8
CLL4709	24	50	0.01	18.2	0.24	9.9
CLL4710	25	50	0.01	19.0	0.25	9.5
CLL4711	27	50	0.01	20.4	0.27	8.8
CLL4712	28	50	0.01	21.2	0.28	8.5
CLL4713	30	50	0.01	22.8	0.30	7.9
CLL4714	33	50	0.01	25.0	0.33	7.2
CLL4715	36	50	0.01	27.3	0.36	6.6
CLL4716	39	50	0.01	29.6	0.39	6.1
CLL4717	43	50	0.01	32.6	0.43	5.5

All dimensions in inches (mm).



DATA
SHEET

R2

THRU
CLL4764A

1.0W ZENER DIODE
5% TOLERANCE



MELF CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL4729A Series Silicon Zener Diode is a high quality voltage regulator for use in surface mount industrial, commercial, entertainment and computer applications.

Marking Code: Cathode Band

ABSOLUTE MAXIMUM RATINGS

Power Dissipation

Operating and Storage Temperature

SYMBOL

P_D

T_J, T_{stg}

1.0

-65 to +200

UNITS

W

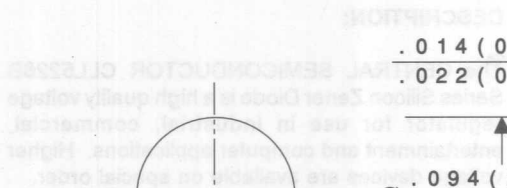
°C

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$), $V_F=1.2\text{MAX}$ @ $I_F=200\text{mA}$ FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE $V_Z @ I_{Z1}$	TEST CURRENT I_{Z1}	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT $I_R @ V_R$		MAXIMUM DC CURRENT I_{ZM}
	VOLTS	mA	$Z_{Z1} @ I_{Z1}$	$Z_{Z2} @ I_{Z2}$	mA	μA	VOLTS	mA
CLL4729A	3.6	69	10	400	1.0	100	1.0	1260
CLL4730A	3.9	64	9.0	400	1.0	50	1.0	1190
CLL4731A	4.3	58	9.0	400	1.0	10	1.0	1070
CLL4732A	4.7	53	8.0	500	1.0	10	1.0	970
CLL4733A	5.1	49	7.0	550	1.0	10	1.0	890
CLL4734A	5.6	45	5.0	600	1.0	10	2.0	810
CLL4735A	6.2	41	2.0	700	1.0	10	3.0	730
CLL4736A	6.8	37	3.5	700	1.0	10	4.0	660
CLL4737A	7.5	34	4.0	700	0.5	10	5.0	605
CLL4738A	8.2	31	4.5	700	0.5	10	6.0	550
CLL4739A	9.1	28	5.0	700	0.5	10	7.0	500
CLL4740A	10	25	7.0	700	0.25	10	7.6	454
CLL4741A	11	23	8.0	700	0.25	5.0	8.4	414
CLL4742A	12	21	9.0	700	0.25	5.0	9.1	380
CLL4743A	13	19	10	700	0.25	5.0	9.9	344
CLL4744A	15	17	14	700	0.25	5.0	11.4	304
CLL4745A	16	15.5	16	700	0.25	5.0	12.2	285
CLL4746A	18	14	20	750	0.25	5.0	13.7	250
CLL4747A	20	12.5	22	750	0.25	5.0	15.2	225
CLL4748A	22	11.5	23	750	0.25	5.0	16.7	205
CLL4749A	24	10.5	25	750	0.25	5.0	18.2	190
CLL4750A	27	9.5	35	750	0.25	5.0	20.6	170
CLL4751A	30	8.5	40	1000	0.25	5.0	22.8	150
CLL4752A	33	7.5	45	1000	0.25	5.0	25.1	135
CLL4753A*	36	7.0	50	1000	0.25	5.0	27.4	125
CLL4754A*	39	6.5	60	1000	0.25	5.0	29.7	115
CLL4755A*	43	6.0	70	1500	0.25	5.0	32.7	110
CLL4756A*	47	5.5	80	1500	0.25	5.0	35.8	95
CLL4757A*	51	5.0	95	1500	0.25	5.0	38.8	90
CLL4758A*	56	4.5	110	2000	0.25	5.0	42.6	80
CLL4759A*	62	4.0	125	2000	0.25	5.0	47.1	70
CLL4760A*	68	3.7	150	2000	0.25	5.0	51.7	65
CLL4761A*	75	3.3	175	2000	0.25	5.0	56	60
CLL4762A*	82	3.0	200	3000	0.25	5.0	62.2	55
CLL4763A*	91	2.8	250	3000	0.25	5.0	69.2	50
CLL4764A*	100	2.5	350	3000	0.25	5.0	76	45

* Available on special order only, please consult factory.

Dimensions in inches (mm).



DATA SHEET

R2

CLL5226B
THRU
CLL5257B

500 mW ZENER DIODE
5% TOLERANCE



SOD-80 CASE

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A = 50^\circ\text{C}$)
Operating and Storage Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL5226B Series Silicon Zener Diode is a high quality voltage regulator for use in industrial, commercial, entertainment and computer applications. Higher voltage devices are available on special order.

Marking Code: Cathode Band

SYMBOL

P_D
 T_J, T_{stg}

500
-65 to +200

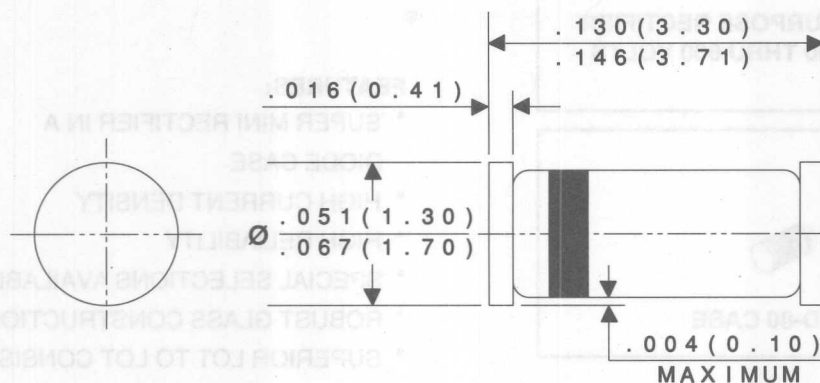
UNITS

mW
 $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, $V_F = 1.1\text{V MAX}$ @ $I_F = 200\text{mA}$ FOR ALL TYPES.)

TYPE NO.	ZENER VOLTAGE	TEST CURRENT	Maximum Zener Impedance			Maximum Reverse Current		MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT
	$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$		θV_Z
	VOLTS	mA	Ω	Ω	mA	μA	VOLTS	$\%/^\circ\text{C}$
CLL5226B	3.3	20	28	1600	0.25	25	1.0	-0.070
CLL5227B	3.6	20	24	1700	0.25	15	1.0	-0.065
CLL5228B	3.9	20	23	1900	0.25	10	1.0	-0.060
CLL5229B	4.3	20	22	2000	0.25	5.0	1.0	± 0.055
CLL5230B	4.7	20	19	1900	0.25	5.0	2.0	± 0.030
CLL5231B	5.1	20	17	1600	0.25	5.0	2.0	± 0.030
CLL5232B	5.6	20	11	1600	0.25	5.0	3.0	+0.038
CLL5233B	6.0	20	7.0	1600	0.25	5.0	3.5	+0.038
CLL5234B	6.2	20	7.0	1000	0.25	5.0	4.0	+0.045
CLL5235B	6.8	20	5.0	750	0.25	3.0	5.0	+0.050
CLL5236B	7.5	20	6.0	500	0.25	3.0	6.0	+0.058
CLL5237B	8.2	20	8.0	500	0.25	3.0	6.5	+0.062
CLL5238B	8.7	20	8.0	600	0.25	3.0	6.5	+0.065
CLL5239B	9.1	20	10	600	0.25	3.0	7.0	+0.068
CLL5240B	10	20	17	600	0.25	3.0	8.0	+0.075
CLL5241B	11	20	22	600	0.25	2.0	8.4	+0.076
CLL5242B	12	20	30	600	0.25	1.0	9.1	+0.077
CLL5243B	13	9.5	13	600	0.25	0.5	9.9	+0.079
CLL5244B	14	9.0	15	600	0.25	0.1	10	+0.082
CLL5245B	15	8.5	16	600	0.25	0.1	11	+0.082
CLL5246B	16	7.8	17	600	0.25	0.1	12	+0.083
CLL5247B	17	7.4	19	600	0.25	0.1	13	+0.084
CLL5248B	18	7.0	21	600	0.25	0.1	14	+0.085
CLL5249B	19	6.6	23	600	0.25	0.1	14	+0.086
CLL5250B	20	6.2	25	600	0.25	0.1	15	+0.086
CLL5251B	22	5.6	29	600	0.25	0.1	17	+0.087
CLL5252B	24	5.2	33	600	0.25	0.1	18	+0.088
CLL5253B	25	5.0	35	600	0.25	0.1	19	+0.089
CLL5254B	27	4.6	41	600	0.25	0.1	21	+0.090
CLL5255B	28	4.5	44	600	0.25	0.1	21	+0.091
CLL5256B	30	4.2	49	600	0.25	0.1	23	+0.091
CLL5257B	33	3.8	58	700	0.25	0.1	25	+0.092

All dimensions in inches (mm).



DESCRIPTION:
The CENTRAL SEMICONDUCTOR 0.5 amp leadless glass diode rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where space is critical.

MAXIMUM RATINGS: (TA=25°C unless otherwise noted)

SYMBOL	CLRH	CLRH	CLRH	UNITS
Peak Repetitive Reverse Voltage	VRM	400	50	V
DC Blocking Voltage	VR	400	50	V
RMS Reverse Voltage	VR(RMS)	280	50	V
Average Forward Current (TA=50°C)	IF	0.5	50	A
Peak Forward Surge Current (Non-Repetitive, 8.3ms avg)	IFSM	10	50	A
Operating and Storage Junction Temperature	TJ, Tstg	55 to +175	50	°C

ELECTRICAL CHARACTERISTICS: (TA=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
VF	IF=10mA		1.1	V
IR	VR=Rated VR, TA=25°C	200		nA
IR	VR=Rated VR, TA=75°C	25		nA
R2	VR=4.0V, f=100kHz	10		Ω

DATA
SHEET

**CLLRH SERIES****GENERAL PURPOSE RECTIFIER
0.5 AMP, 200 THRU 600 VOLTS****SUPERTM
mini****SOD-80 CASE****CENTRAL
Semiconductor Corp.****FEATURES:**

- SUPER MINI RECTIFIER IN A DIODE CASE
- HIGH CURRENT DENSITY
- HIGH RELIABILITY
- SPECIAL SELECTIONS AVAILABLE
- ROBUST GLASS CONSTRUCTION
- SUPERIOR LOT TO LOT CONSISTENCY

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 0.5 amp leadless glass silicon rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where space is critical.

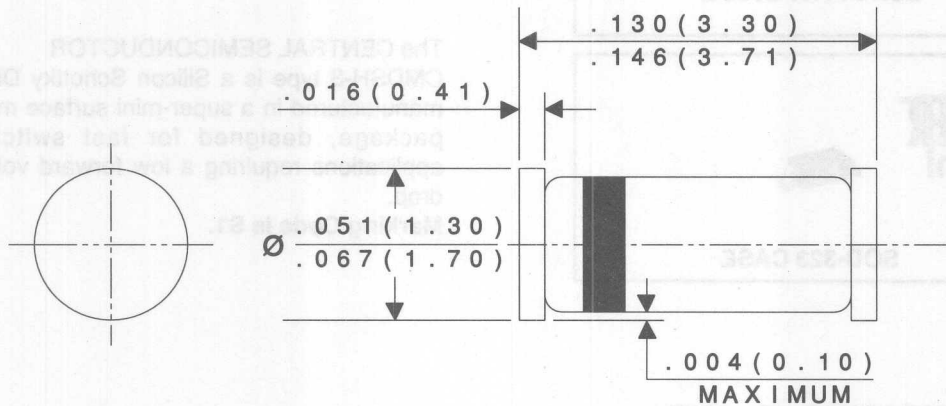
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

		CLLRH -02	CLLRH -04	CLLRH -06	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	V
DC Blocking Voltage	V_R	200	400	600	V
RMS Reverse Voltage	$V_R(\text{RMS})$	140	280	420	V
Average Forward Current ($T_L=80^\circ\text{C}$)	I_O		0.5		A
Peak Forward Surge Current (Non-Repetitive, 8.3ms surge)	I_{FSM}		10		A
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +175		$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_F	$I_F=\text{Rated } I_O$		1.1	V
I_R	$V_R=\text{Rated } V_{RRM}$		200	nA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=150^\circ\text{C}$		25	μA
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		10	pF

All dimensions in inches (mm).



DATA
SHEET

R1

CMDSH-3

**SUPER-MINI
SCHOTTKY DIODE**

**SUPER[™]
mini**



SOD-323 CASE

**Central[™]
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMDSH-3 type is a Silicon Schottky Diode, manufactured in a super-mini surface mount package, designed for fast switching applications requiring a low forward voltage drop.

Marking Code is S1.

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Peak Repetitive Reverse Voltage
Average Forward Current
Forward Surge Current, $t_p=10\text{ ms}$
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{RRM}
 I_O
 I_{FSM}
 P_D

30
100
750
250

UNITS

V
mA
mA
mW

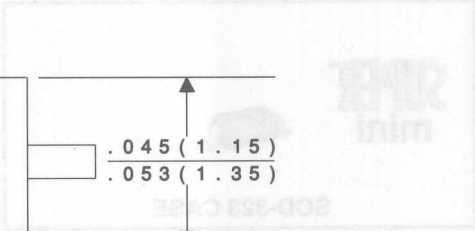
T_J, T_{stg}
 θ_{JA}

-65 to +150
500

$^\circ\text{C}$
 $^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
B_{VR}	$I_F=100\mu\text{A}$	30			V
V_F	$I_F=2.0\text{mA}$		0.30		V
V_F	$I_F=15\text{mA}$		0.36		V
V_F	$I_F=50\text{mA}$		0.47	0.55	V
V_F	$I_F=100\text{mA}$		0.58	0.80	V
I_R	$V_R=25\text{V}$			1.0	μA
C_T	$V_R=10\text{V}, f=1.0\text{ MHz}$		7.0		pF

DATA SHEET

155

CMDSH2-3

**SUPER-MINI
SCHOTTKY DIODE
HIGH CURRENT - 200mA**

**SUPER[™]
mini**



SOD-323 CASE

**Central
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMDSH2-3 type is a Silicon Schottky Diode, manufactured in a super-mini surface mount package, designed for fast switching applications requiring a low forward voltage drop.

Marking Code is S2.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

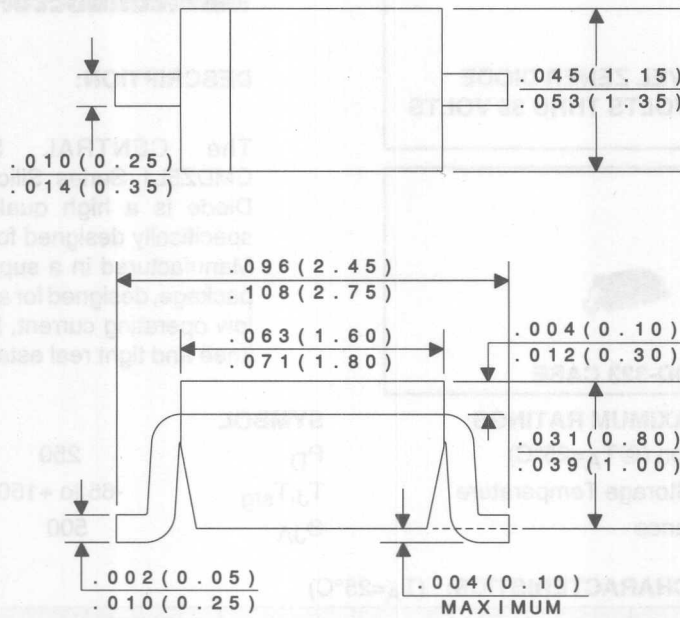
	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	30	V
Average Forward Current	I_O	200	mA
Forward Surge Current, $t_p=10$ ms	I_{FSM}	1.0	A
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	500	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
B_{VR}	$I_F=100\mu\text{A}$	30			V
V_F	$I_F=2.0\text{mA}$		0.26		V
V_F	$I_F=15\text{mA}$		0.32		V
V_F	$I_F=100\text{mA}$		0.42		V
V_F	$I_F=200\text{mA}$		0.49	0.55	V
I_R	$V_R=30\text{V}$		0.40	50	μA
C_T	$V_R=10\text{V}, f=1.0\text{ MHz}$		15		pF

All dimensions in inches (mm).

TOP VIEW



DATA
SHEET

R1

CMDZ5L1 THRU CMDZ36L

LOW LEVEL ZENER DIODE
250mW, 5.1 VOLTS THRU 36 VOLTS

**SUPERTM
mini**



SOD-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMDZ5L1 Series Silicon Low Level Zener Diode is a high quality voltage regulator specifically designed for operation at 500 μ A. Manufactured in a supermini surface mount package, designed for applications requiring a low operating current, low leakage, a sharp knee and tight real estate situations.

ABSOLUTE MAXIMUM RATINGS:

Power Dissipation (@T_A=25°C)
Operating and Storage Temperature
Thermal Resistance

SYMBOL

P_D 250
T_J, T_{stg} -65 to +150
 Θ_{JA} 500

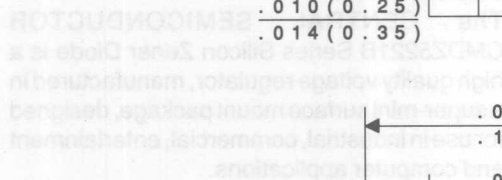
UNIT

mW
°C
°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

TYPE	ZENER VOLTAGE V _Z @ I _{ZT}			TEST CURRENT I _{ZT}	MAXIMUM ZENER IMPEDANCE Z _{ZT} @ I _{ZT}	MAXIMUM REVERSE CURRENT I _R @ V _R		MARKING
	MIN	NOM	MAX			I _R @ V _R		
	(V)	(V)	(V)			(μA)	(V)	
CMDZ5L1	4.84	5.1	5.37	500	350	1.0	1.5	LP
CMDZ5L6	5.31	5.6	5.92	500	90	1.0	2.0	NP
CMDZ6L2	5.86	6.2	6.53	500	90	1.0	2.0	OP
CMDZ6L8	6.47	6.8	7.14	500	60	1.0	3.5	PP
CMDZ7L5	7.06	7.5	7.84	500	60	1.0	3.5	QP
CMDZ8L2	7.76	8.2	8.64	500	60	1.0	6.0	RP
CMDZ9L1	8.56	9.1	9.55	500	60	1.0	6.0	SP
CMDZ10L	9.45	10	10.55	500	80	1.0	8.0	TP
CMDZ11L	10.44	11	11.56	500	80	1.0	8.0	UP
CMDZ12L	11.42	12	12.60	500	80	1.0	10.5	VP
CMDZ13L	12.47	13	13.96	500	80	1.0	10.5	XP
CMDZ15L	13.84	15	15.52	500	80	1.0	11.5	YP
CMDZ16L	15.37	16	17.09	500	80	1.0	14	ZP
CMDZ18L	16.94	18	19.03	500	80	1.0	16	1P
CMDZ20L	18.86	20	21.08	500	100	1.0	18	2P
CMDZ22L	20.88	22	23.17	500	100	1.0	20	3P
CMDZ24L	22.93	24	25.57	500	120	1.0	22	4P
CMDZ27L	25.10	27	28.90	500	150	1.0	24	5P
CMDZ30L	28.00	30	32.00	500	200	1.0	27	6P
CMDZ33L	31.00	33	35.00	500	250	1.0	30	7P
CMDZ36L	34.00	36	38.00	500	300	1.0	33	8P

dimensions in inches (mm).



DATA SHEET

**CMDZ5221B
THRU
CMDZ5261B**

**SUPER-MINI ZENER DIODE
2.4 VOLTS THRU 47 VOLTS
250mW, 5% TOLERANCE**

**SUPERTM
mini**



SOD-323 CASE

**CentralTM
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMDZ5221B Series Silicon Zener Diode is a high quality voltage regulator, manufactured in a super-mini surface mount package, designed for use in industrial, commercial, entertainment and computer applications.

ABSOLUTE MAXIMUM RATINGS:

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
Operating and Storage Temperature
Thermal Resistance

SYMBOL

P_D
 T_J, T_{stg}
 θ_{JA}

250
-65 to +150
500

UNIT

mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

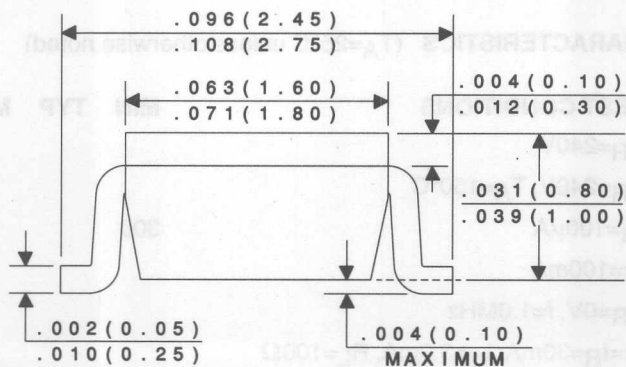
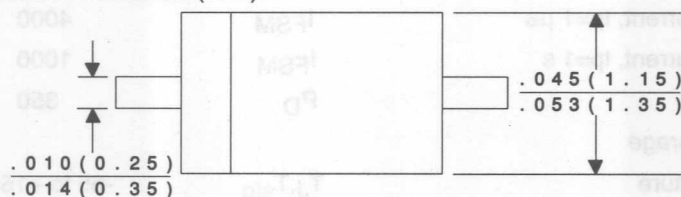
ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX @ } I_F=10\text{mA}$ FOR ALL TYPES.

TYPE	ZENER VOLTAGE V _Z @ I _{ZT}			TEST CURRENT	MAXIMUM ZENER IMPEDENCE			MAXIMUM REVERSE CURRENT		MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT
	MIN	NOM	MAX		I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _R @ V _R		
	VOLTS	VOLTS	VOLTS		mA	Ω	Ω	mA	μA		VOLTS	%/°C
CMDZ5221B	2.280	2.4	2.520	20	30	1200	0.25	100	1.0	-0.085
CMDZ5222B	2.375	2.5	2.625	20	30	1250	0.25	100	1.0	-0.085
CMDZ5223B	2.565	2.7	2.835	20	30	1300	0.25	75	1.0	-0.080
CMDZ5224B	2.660	2.8	2.940	20	30	1400	0.25	75	1.0	-0.080
CMDZ5225B	2.850	3.0	3.150	20	29	1600	0.25	50	1.0	-0.075
CMDZ5226B	3.135	3.3	3.465	20	28	1600	0.25	25	1.0	-0.070
CMDZ5227B	3.420	3.6	3.780	20	24	1700	0.25	15	1.0	-0.065
CMDZ5228B	3.705	3.9	4.095	20	23	1900	0.25	10	1.0	-0.060
CMDZ5229B	4.085	4.3	4.515	20	22	2000	0.25	5.0	1.0	±0.055
CMDZ5230B	4.465	4.7	4.935	20	19	1900	0.25	5.0	2.0	±0.030
CMDZ5231B	4.845	5.1	5.355	20	17	1600	0.25	5.0	2.0	±0.030
CMDZ5232B	5.320	5.6	5.880	20	11	1600	0.25	5.0	3.0	+0.038
CMDZ5233B	5.700	6.0	6.300	20	7.0	1600	0.25	5.0	3.5	+0.038
CMDZ5234B	5.890	6.2	6.510	20	7.0	1000	0.25	5.0	4.0	+0.045
CMDZ5235B	6.460	6.8	7.140	20	5.0	750	0.25	3.0	5.0	+0.050
CMDZ5236B	7.125	7.5	7.875	20	6.0	500	0.25	3.0	6.0	+0.058
CMDZ5237B	7.790	8.2	8.610	20	8.0	500	0.25	3.0	6.5	+0.062
CMDZ5238B	8.265	8.7	9.135	20	8.0	600	0.25	3.0	6.5	+0.065
CMDZ5239B	8.645	9.1	9.555	20	10	600	0.25	3.0	7.0	+0.068
CMDZ5240B	9.500	10	10.50	20	17	600	0.25	3.0	8.0	+0.075
CMDZ5241B	10.45	11	11.55	20	22	600	0.25	2.0	8.4	+0.076
CMDZ5242B	11.40	12	12.60	20	30	600	0.25	1.0	9.1	+0.077

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX @ } I_F=10\text{mA}$ FOR ALL TYPES.

TYPE	ZENER VOLTAGE $V_Z @ I_{ZT}$			TEST CURRENT	MAXIMUM ZENER IMPEDENCE			MAXIMUM REVERSE CURRENT		MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT
	MIN	NOM	MAX		$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_R @ V_R$			
	VOLTS	VOLTS	VOLTS		Ω	Ω	mA	μA	VOLTS	$\%/^{\circ}\text{C}$
CMDZ5243B	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9	+0.079
CMDZ5244B	13.30	14	14.70	9.0	15	600	0.25	0.1	10	+0.082
CMDZ5245B	14.25	15	15.75	8.5	16	600	0.25	0.1	11	+0.082
CMDZ5246B	15.20	16	16.80	7.8	17	600	0.25	0.1	12	+0.083
CMDZ5247B	16.15	17	17.85	7.4	19	600	0.25	0.1	13	+0.084
CMDZ5248B	17.10	18	18.90	7.0	21	600	0.25	0.1	14	+0.085
CMDZ5249B	18.05	19	19.95	6.6	23	600	0.25	0.1	14	+0.086
CMDZ5250B	19.00	20	21.00	6.2	25	600	0.25	0.1	15	+0.086
CMDZ5251B	20.90	22	23.10	5.6	29	600	0.25	0.1	17	+0.087
CMDZ5252B	22.80	24	25.20	5.2	33	600	0.25	0.1	18	+0.088
CMDZ5253B	23.75	25	26.25	5.0	35	600	0.25	0.1	19	+0.089
CMDZ5254B	25.65	27	28.35	4.6	41	600	0.25	0.1	21	+0.090
CMDZ5255B	26.60	28	29.40	4.5	44	600	0.25	0.1	21	+0.091
CMDZ5256B	28.50	30	31.50	4.2	49	600	0.25	0.1	23	+0.091
CMDZ5257B	31.35	33	34.65	3.8	58	700	0.25	0.1	25	+0.092
CMDZ5258B	34.20	36	37.80	3.4	70	700	0.25	0.1	27	+0.093
CMDZ5259B	37.05	39	40.95	3.2	80	800	0.25	0.1	30	+0.094
CMDZ5260B	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095
CMDZ5261B	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095

All dimensions in inches (mm).

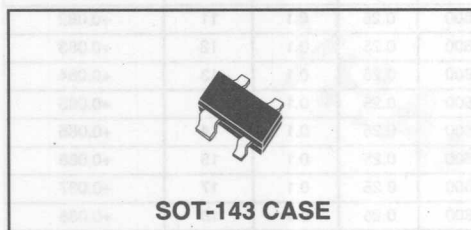


DATA
SHEET

R1

NEW **CMFD2004i**

DUAL ISOLATED HIGH VOLTAGE SWITCHING DIODES



CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMFD2004i type is a Silicon Dual Isolated High Voltage Switching diode designed for surface mount switching applications requiring high voltage capabilities.

Marking Code is CJP.

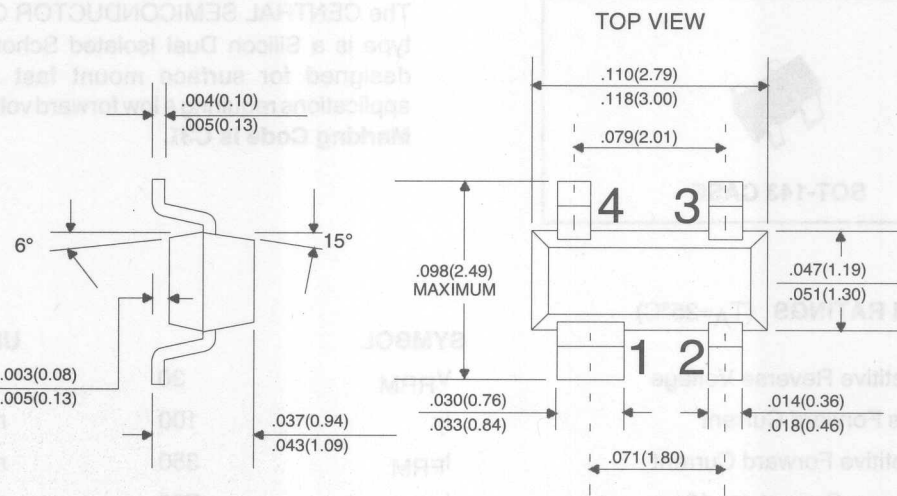
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Continuous Reverse Voltage	V _R	240	V
Peak Repetitive Reverse Voltage	V _{RRM}	300	V
Peak Repetitive Reverse Current	I _O	200	mA
Continuous Forward Current	I _F	225	mA
Peak Repetitive Forward Current	I _{FRM}	625	mA
Forward Surge Current, t _p =1 μs	I _{FSM}	4000	mA
Forward Surge Current, t _p =1 s	I _{FSM}	1000	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _R	V _R =240V			100	nA
I _R	V _R =240V, T _A =150°C			100	μA
B _{VR}	I _R =100μA	300			V
V _F	I _F =100mA			1.00	V
C _T	V _R =0V, f=1.0MHz			5.0	pF
t _{rr}	I _F =I _R =30mA, I _{rr} =3.0mA, R _L =100Ω			50	ns

All Dimensions in Inches (mm).



LEAD CODE:

- 1) Cathode 1
- 2) Cathode 2
- 3) Anode 2
- 4) Anode 1

DATA
SHEET

R1



CMFSH-3i

DUAL ISOLATED SCHOTTKY DIODES



SOT-143 CASE

Central
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMFSH-3i type is a Silicon Dual Isolated Schottky diode designed for surface mount fast switching applications requiring a low forward voltage drop.

Marking Code is C3I.

MAXIMUM RATINGS (T_A=25°C)

Peak Repetitive Reverse Voltage
Continuous Forward Current
Peak Repetitive Forward Current
Forward Surge Current, tp=10ms
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL		UNITS
V _{RRM}	30	V
I _F	100	mA
I _{FRM}	350	mA
I _{FSM}	750	mA
P _D	350	mW
T _J , T _{stg}	-65 to +150	°C
Θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS PER DIODE (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _R	V _R =25V		90	500	nA
I _R	V _R =25V, T _A =100°C		25	100	μA
B _{VR}	I _R =100μA	30			V
V _F	I _F =2.0mA		0.29	0.33	V
V _F	I _F =15mA		0.40	0.45	V
V _F	I _F =100mA		0.74	1.00	V
C _T	V _R =1.0V, f=1.0MHz		7.0		pF
t _{rr}	I _F =I _R =10mA, I _{rr} =1.0mA, R _L =100Ω			5.0	ns

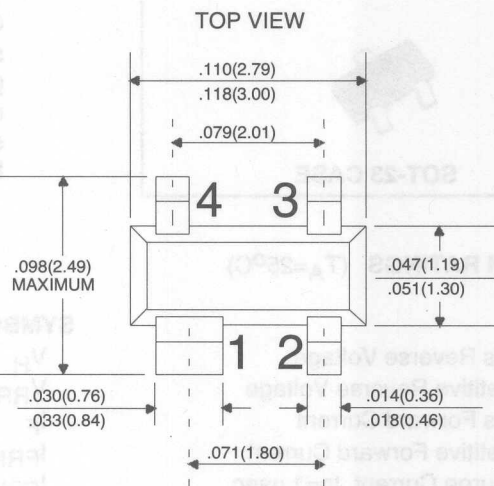
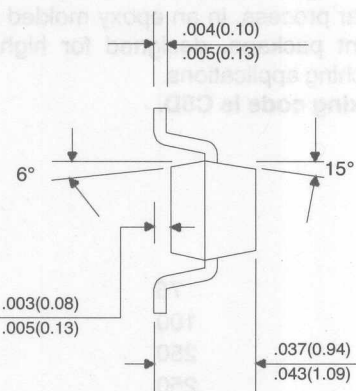
All Dimensions in Inches (mm).

The CENTRAL SEMICONDUCTOR CMPD814 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process. It is designed for high speed switching applications. Marking code is C814.

UNIT
V
V
mA
mA
mA
mA
mA
W

PC
PCW

UNIT
V
A
A
V
W
W

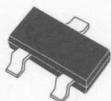


LEAD CODE:

- 1) Cathode 1
- 2) Cathode 2
- 3) Anode 2
- 4) Anode 1

DATA
SHEET

R1

CMPD914**HIGH SPEED
SWITCHING DIODE****SOT-23 CASE**
Central™
Semiconductor Corp.
DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPD914 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded surface mount package, designed for high speed switching applications.

Marking code is C5D.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Continuous Reverse Voltage
 Peak Repetitive Reverse Voltage
 Continuous Forward Current
 Peak Repetitive Forward Current
 Forward Surge Current, $t_p=1\ \mu\text{sec.}$
 Forward Surge Current, $t_p=1\ \text{msec.}$
 Forward Surge Current, $t_p=1\ \text{sec.}$
 Power Dissipation
 Operating and Storage
 Junction Temperature
 Thermal Resistance

SYMBOL V_R

75

UNITS

V

 V_{RRM}

100

V

 I_F

250

mA

 I_{FRM}

250

mA

 I_{FSM}

4000

mA

 I_{FSM}

2000

mA

 I_{FSM}

1000

mA

 P_D

350

mW

 T_J, T_{stg}

-65 to +150

 $^{\circ}\text{C}$ θ_{JA}

357

 $^{\circ}\text{C/W}$ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**SYMBOL****TEST CONDITIONS****MIN****MAX****UNITS** V_{BR} $I_R=100\ \mu\text{A}$

100

V

 I_R $V_R=20\text{V}$

25

nA

 I_R $V_R=75\text{V}$

5.0

 μA V_F $I_F=10\text{mA}$

1.0

V

 C_T $V_R=0, f=1\ \text{MHz}$

4.0

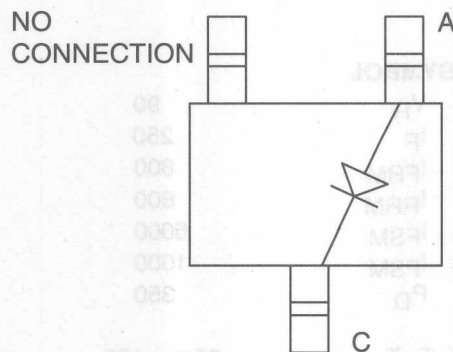
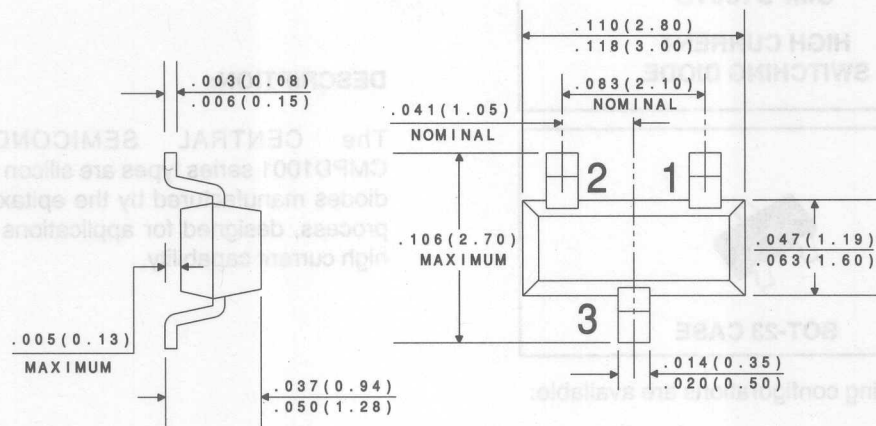
pF

 t_{rr} $I_R=I_F=10\text{mA}, R_L=100\ \Omega, \text{Rec. to } 1.0\text{mA}$

4.0

ns

All dimensions in inches (mm).



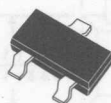
DATA
SHEET

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
V_F	$I_F=10mA$		0.75	V
I_R	$V_R=90V, T_A=125^{\circ}C$		100	μA
I_R	$V_R=90V$		100	μA
θ_{JA}				$^{\circ}C/W$

R2

CMPD1001
CMPD1001A
CMPD1001S

HIGH CURRENT
SWITCHING DIODE



SOT-23 CASE

Central
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD1001 series types are silicon switching diodes manufactured by the epitaxial planar process, designed for applications requiring high current capability.

The following configurations are available:

CMPD1001	SINGLE
CMPD1001S	DUAL, IN SERIES
CMPD1001A	DUAL, COMMON ANODE

MARKING CODE: L20
MARKING CODE: L21
MARKING CODE: L22

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

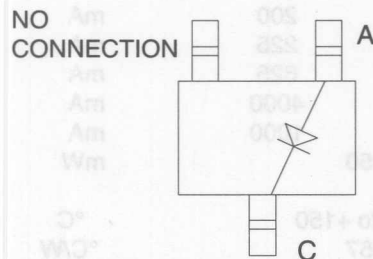
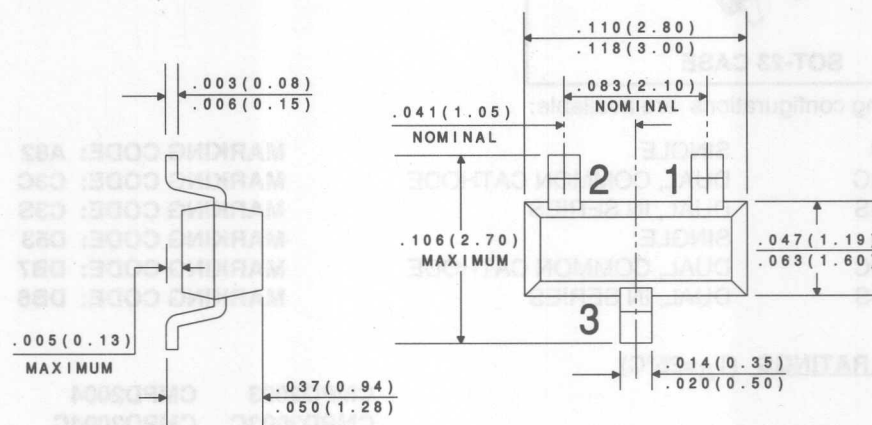
	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	90	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	600	mA
Peak Repetitive Reverse Current	I_{RRM}	600	mA
Forward Surge Current, $t_p=1\ \mu\text{s}$	I_{FSM}	6000	mA
Forward Surge Current, $t_p=1\ \text{s}$	I_{FSM}	1000	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

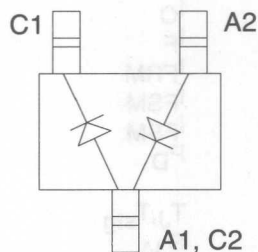
SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
B_{VR}	$I_R=100\ \mu\text{A}$	90		V
I_R	$V_R=90\text{V}$		100	nA
I_R	$V_R=90\text{V}, T_A=150^{\circ}\text{C}$		100	μA
V_F	$I_F=10\text{mA}$		0.75	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
V_F	$I_F=50\text{mA}$		0.84	V
V_F	$I_F=100\text{mA}$		0.90	V
V_F	$I_F=200\text{mA}$		1.00	V
V_F	$I_F=400\text{mA}$		1.25	V
C_T	$V_R=0$, $f=1\text{ MHz}$		35	pF
t_{rr}	$I_F=I_R=30\text{mA}$, RECOV. TO 3.0mA , $R_L=100\Omega$		50	ns

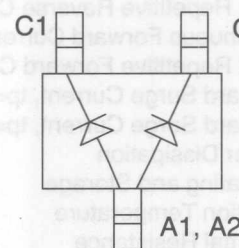
All dimensions in inches (mm).



CMPD1001



CMPD1001S



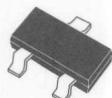
CMPD1001A

DATA
SHEET

R2

CMPD2003
NEW! CMPD2003C
NEW! CMPD2003S
CMPD2004
NEW! CMPD2004C
CMPD2004S

**SURFACE MOUNT
HIGH VOLTAGE SWITCHING DIODE**



SOT-23 CASE

The following configurations are available:

CMPD2003	SINGLE
CMPD2003C	DUAL, COMMON CATHODE
CMPD2003S	DUAL, IN SERIES
CMPD2004	SINGLE
CMPD2004C	DUAL, COMMON CATHODE
CMPD2004S	DUAL, IN SERIES

MARKING CODE: A82
MARKING CODE: C3C
MARKING CODE: C3S
MARKING CODE: D53
MARKING CODE: DB7
MARKING CODE: DB6

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL	CMPD2003 CMPD2003C CMPD2003S	CMPD2004 CMPD2004C CMPD2004S	UNITS
Continuous Reverse Voltage	V_R	200	240	V
Peak Repetitive Reverse Voltage	V_{RRM}	250	300	V
Peak Repetitive Reverse Current	I_O	200	200	mA
Continuous Forward Current	I_F	250	225	mA
Peak Repetitive Forward Current	I_{FRM}	625	625	mA
Forward Surge Current, $t_p=1$ ms	I_{FSM}	4000	4000	mA
Forward Surge Current, $t_p=1$ s	I_{FSM}	1000	1000	mA
Power Dissipation	P_D	350		mW
Operating and Storage	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Junction Temperature	θ_{JA}	357		$^\circ\text{C/W}$
Thermal Resistance				

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPD2003 CMPD2003C CMPD2003S		CMPD2004 CMPD2004C CMPD2004S		UNIT
		MIN	MAX	MIN	MAX	
BV_R	$I_R=100\mu\text{A}$	250		300		V
I_R	$V_R=200\text{V}$		100			nA

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPD2003, CMPD2003C, CMPD2003S, CMPD2004, CMPD2004C, and CMPD2004S types are silicon switching diodes manufactured by the epitaxial planar process, designed for applications requiring high voltage capability.

SYMBOL

TEST CONDITIONS

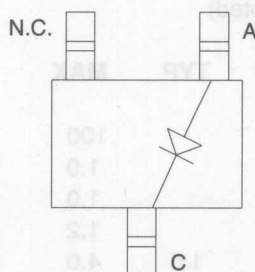
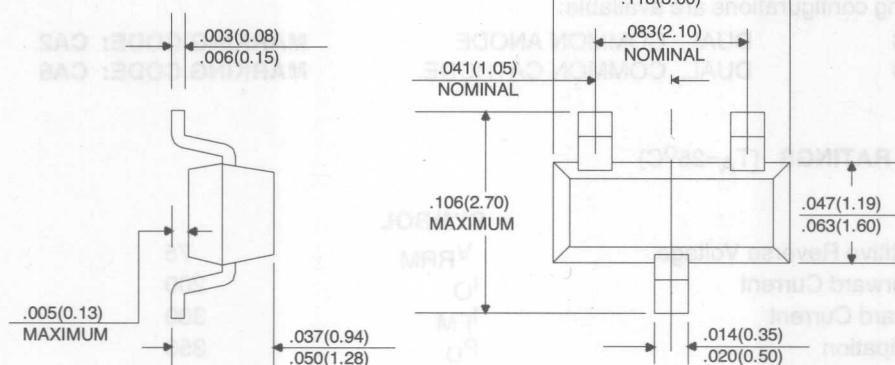
CMPD2003
CMPD2003C
CMPD2003S
MIN MAX

CMPD2004
CMPD2004C
CMPD2004S
MIN MAX

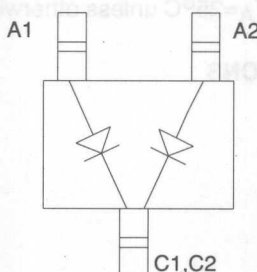
UNIT

I_R	$V_R=200V, T_A=150^\circ C$	100	-	μA
I_R	$V_R=240V$	-	100	nA
I_R	$V_R=240V, T_A=150^\circ C$	-	100	μA
V_F	$I_F=100mA$	1.0	1.0	V
V_F	$I_F=200mA$	1.25	-	V
C_T	$V_R=0, f=1 MHz$	5.0	5.0	pF
t_{rr}	$I_F=I_R=30mA, Rec. TO 3.0mA, R_L=100\Omega$	50	50	ns

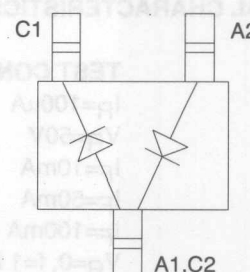
All Dimensions in Inches (mm).



CMPD2003
CMPD2004



CMPD2003C
CMPD2004C



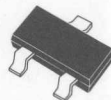
CMPD2003S
CMPD2004S

DATA
 SHEET

R3

CMPD2836
CMPD2838

DUAL SILICON
SWITCHING DIODE



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD2836, CMPD2838 types are ultra-high speed silicon switching diodes manufactured by the epitaxial planar process, in an epoxy molded surface mount package, designed for high speed switching applications.

The following configurations are available:

CMPD2836 DUAL, COMMON ANODE
CMPD2838 DUAL, COMMON CATHODE

MARKING CODE: CA2
MARKING CODE: CA6

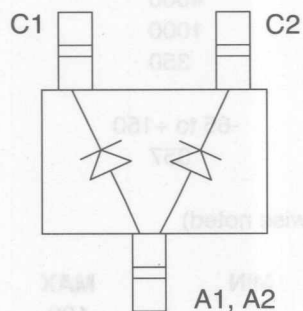
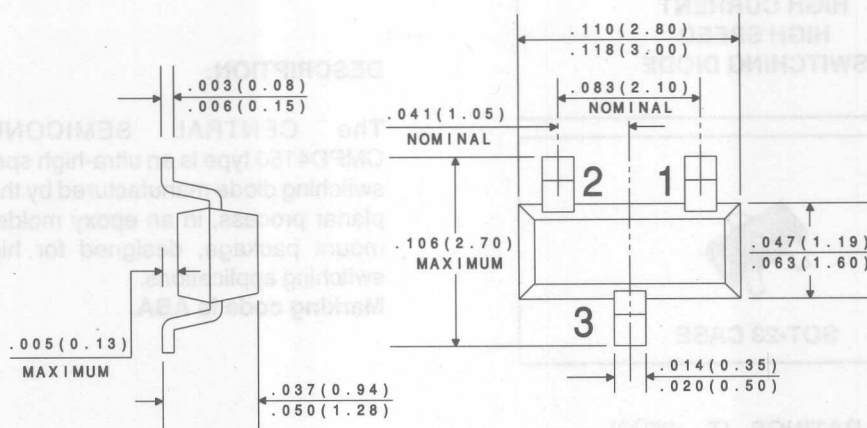
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	75	V
Average Forward Current	I _O	200	mA
Peak Forward Current	I _{FM}	300	mA
Power Dissipation	P _D	350	mW
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

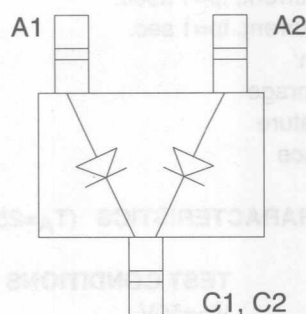
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV _R	I _R =100μA	75			V
I _R	V _R =50V			100	nA
V _F	I _F =10mA			1.0	V
V _F	I _F =50mA			1.0	V
V _F	I _F =100mA			1.2	V
C _T	V _R =0, f=1 MHz		1.5	4.0	pF
t _{rr}	I _R =I _F =10mA, R _L =100Ω, Rec. to 1.0mA			4.0	ns

All dimension in inches (mm).



CMPD2836



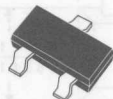
CMPD2838

DATA
SHEET

R2

CMPD4150

**HIGH CURRENT
HIGH SPEED
SWITCHING DIODE**

**SOT-23 CASE**

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD4150 type is an ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded surface mount package, designed for high speed switching applications.

Marking code is ABA.

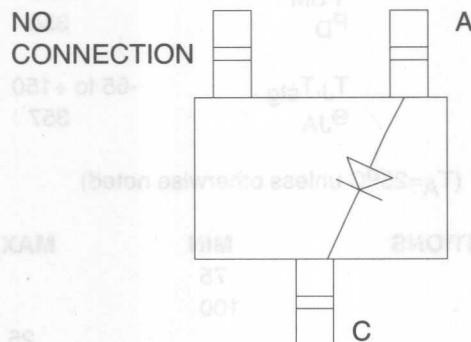
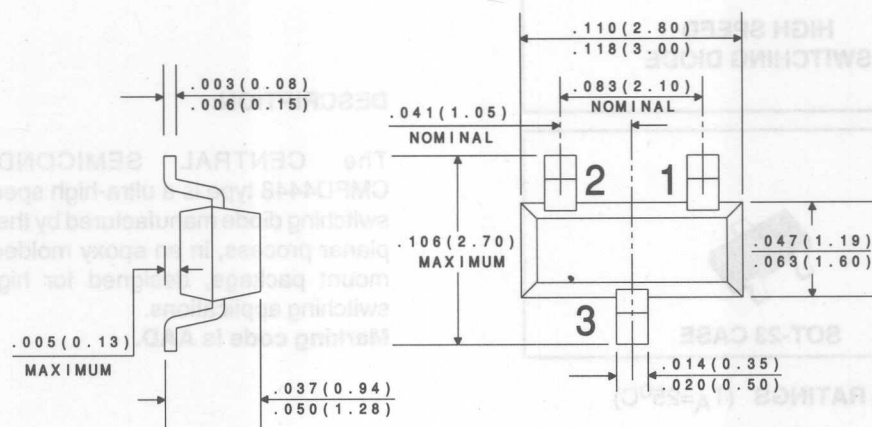
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	50	V
Peak Repetitive Reverse Voltage	V_{RRM}	50	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	250	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	350	mW
Operating and Storage	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Junction Temperature	θ_{JA}	357	$^{\circ}\text{C/W}$
Thermal Resistance			

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=50\text{V}$		100	nA
V_F	$I_F=1.0\text{mA}$	0.54	0.62	V
V_F	$I_F=10\text{mA}$	0.66	0.74	V
V_F	$I_F=50\text{mA}$	0.76	0.86	V
V_F	$I_F=100\text{mA}$	0.82	0.92	V
V_F	$I_F=200\text{mA}$	0.87	1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



DATA
SHEET

R2

CMPD4448

**HIGH SPEED
SWITCHING DIODE**



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD4448 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded surface mount package, designed for high speed switching applications.

Marking code is AAD.

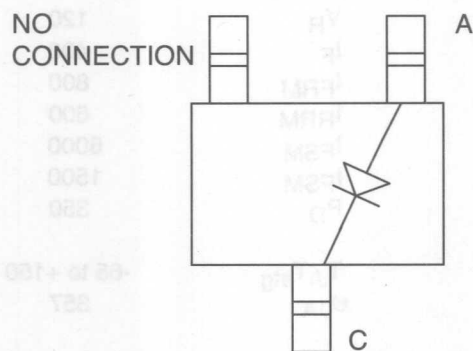
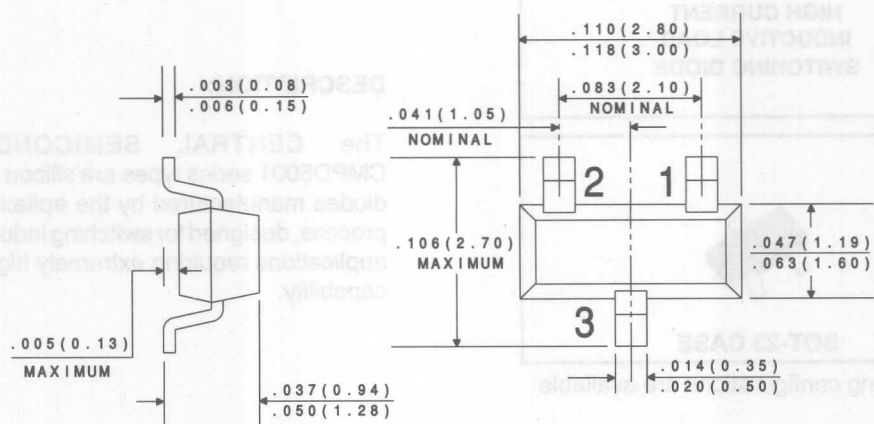
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	75	V
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	250	mA
Forward Surge Current, $t_p=1\ \mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_{BR}	$I_R=5.0\ \mu\text{A}$	75		V
V_{BR}	$I_R=100\ \mu\text{A}$	100		V
I_R	$V_R=20\text{V}$		25	nA
V_F	$I_F=5.0\text{mA}$	0.62	0.72	V
V_F	$I_F=100\text{mA}$		1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\ \Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



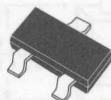
DATA
SHEET

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
B_{VR}	$I_{p1}=0mA$	150	175	V
I_H	$V_H=90V$		100	mA
I_F	$V_F=90V, T_A=100^{\circ}C$		100	μA
V_F	$I_F=10mA$		0.75	V
V_F	$I_F=50mA$		0.84	V
V_F	$I_F=100mA$		0.90	V
V_F	$I_F=500mA$		1.50	V

R2

**CMPD5001
CMPD5001S**

**HIGH CURRENT
INDUCTIVE LOAD
SWITCHING DIODE**



SOT-23 CASE

The following configurations are available:

CMPD5001	SINGLE
CMPD5001S	DUAL, IN SERIES

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD5001 series types are silicon switching diodes manufactured by the epitaxial planar process, designed for switching inductive load applications requiring extremely high current capability.

MARKING CODE: DA2
MARKING CODE: D49

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

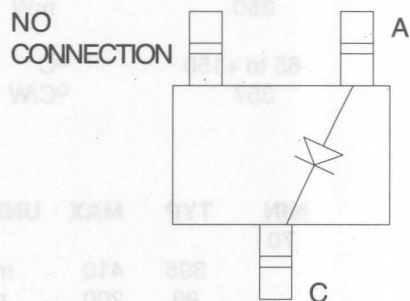
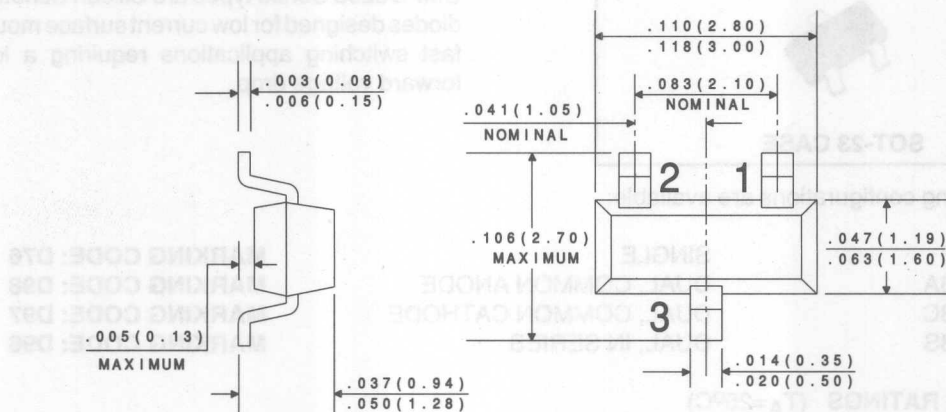
	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	120	V
Continuous Forward Current	I_F	400	mA
Peak Repetitive Forward Current	I_{FRM}	800	mA
Peak Repetitive Reverse Current	I_{RRM}	600	mA
Forward Surge Current, $t_p=1\ \mu\text{s}$	I_{FSM}	6000	mA
Forward Surge Current, $t_p=1\ \text{s}$	I_{FSM}	1500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

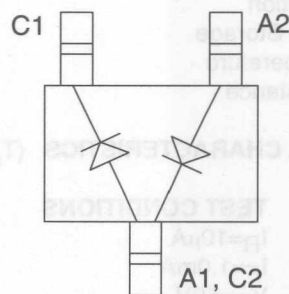
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
B_{VR}	$I_R=1.0\text{mA}$	120	175	V
I_R	$V_R=90\text{V}$		100	nA
I_R	$V_R=90\text{V}, T_A=150^{\circ}\text{C}$		100	μA
V_F	$I_F=10\text{mA}$		0.75	V
V_F	$I_F=50\text{mA}$		0.84	V
V_F	$I_F=100\text{mA}$		0.90	V
V_F	$I_F=200\text{mA}$		1.00	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_F	$I_F=400\text{mA}$		1.25	V
C_T	$V_R=0$, $f=1\text{ MHz}$		35	pF
t_{rr}	$I_F=I_R=30\text{mA}$, RECOV. TO 1.0mA , $R_L=100\Omega$		60	ns
t_{rr}	$I_F=I_R=10\text{mA}$, RECOV. TO 1.0mA , $R_L=100\Omega$		50	ns

All dimensions in inches (mm).



CMPD5001



CMPD5001S

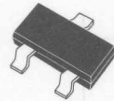
DATA
SHEET

R2

CentralTM Semiconductor Corp.

CMPD6263
CMPD6263A
CMPD6263C
CMPD6263S

SCHOTTKY DIODES



SOT-23 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD6263 Series types are Silicon Schottky diodes designed for low current surface mount fast switching applications requiring a low forward voltage drop.

The following configurations are available:

CMPD6263	SINGLE
CMPD6263A	DUAL, COMMON ANODE
CMPD6263C	DUAL, COMMON CATHODE
CMPD6263S	DUAL, IN SERIES

MARKING CODE: D76
MARKING CODE: D98
MARKING CODE: D97
MARKING CODE: D96

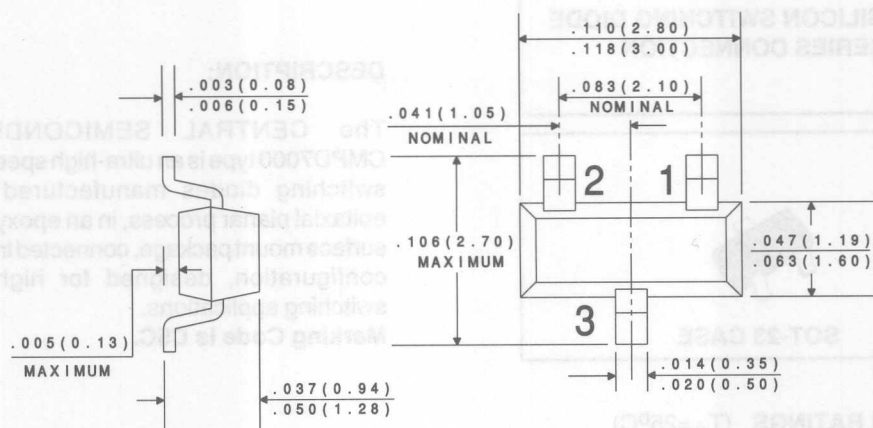
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	70	V
Continuous Forward Current	I _F	15	mA
Forward Surge Current, t _p =1.0 s	I _{FSM}	50	mA
Power Dissipation	P _D	350	mW
Operating and Storage	T _J , T _{stg}	-65 to +150	°C
Junction Temperature	θ _{JA}	357	°C/W
Thermal Resistance			

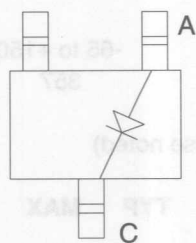
ELECTRICAL CHARACTERISTICS (T_A=25°C)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
B _{VR}	I _R =10μA	70			V
V _F	I _F =1.0mA		395	410	mV
I _R	V _R =50V		98	200	nA
C _T	V _R =0V, f=1.0MHz			2.0	pF

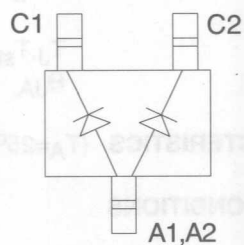
All dimensions in inches (mm).



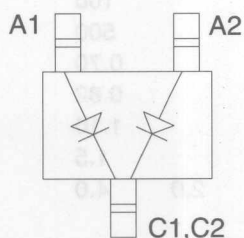
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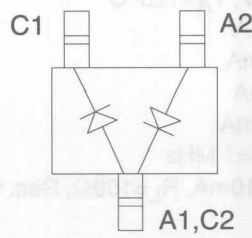
CMPD6263



CMPD6263A



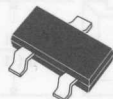
CMPD6263C



CMPD6263S

DATA
SHEET

R2

CMPD7000**DUAL SILICON SWITCHING DIODE
SERIES CONNECTION****SOT-23 CASE**
CentralTM
Semiconductor Corp.
DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPD7000 type is an ultra-high speed silicon switching diodes manufactured by the epitaxial planar process, in an epoxy molded surface mount package, connected in a series configuration, designed for high speed switching applications.

Marking Code is C5C.

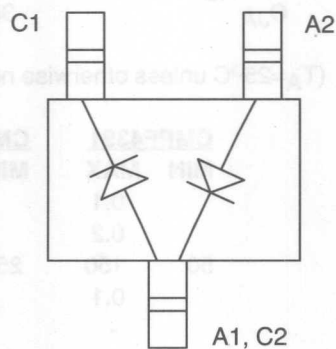
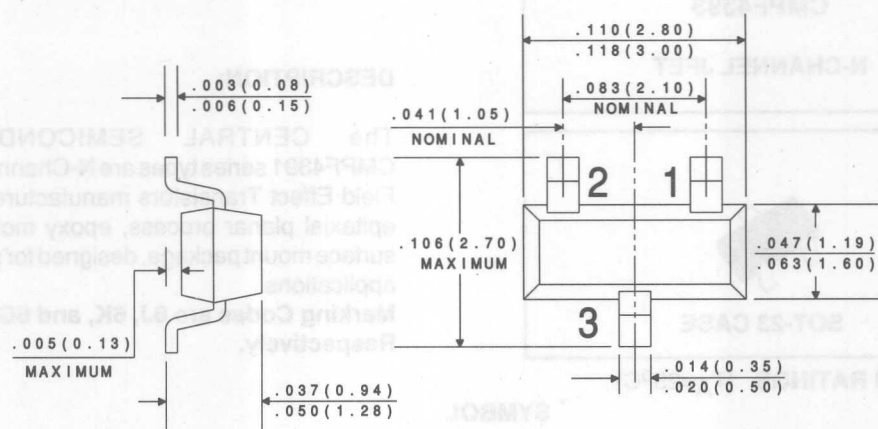
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Average Forward Current	I_O	200	mA
Peak Forward Current	I_{FM}	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_R	$I_R=100\mu\text{A}$	100			V
I_R	$V_R=50\text{V}$			300	nA
I_R	$V_R=50\text{V}, T_A=125^\circ\text{C}$			100	μA
I_R	$V_R=100\text{V}$			500	nA
V_F	$I_F=1.0\text{mA}$	0.55		0.70	V
V_F	$I_F=10\text{mA}$	0.67		0.82	V
V_F	$I_F=100\text{mA}$	0.75		1.10	V
C_T	$V_R=0, f=1\text{ MHz}$			1.5	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\Omega, \text{Rec. to } 1.0\text{mA}$		2.0	4.0	ns

All dimensions in inches (mm).

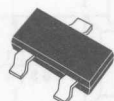


DATA SHEET

R2

CMPF4391
CMPF4392
CMPF4393

N-CHANNEL JFET



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPF4391 series types are N-Channel Silicon Field Effect Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for switching applications.

Marking Codes are 6J, 6K, and 6G
Respectively.

MAXIMUM RATINGS (T_A=25°C)

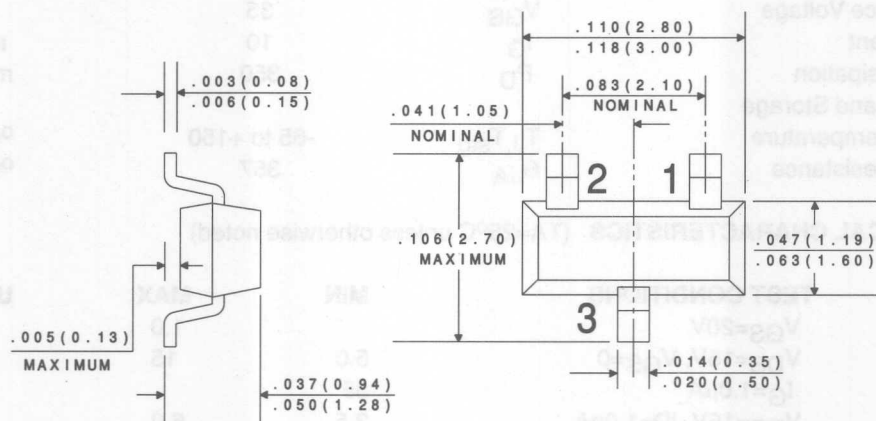
	SYMBOL		UNITS
Drain-Gate Voltage	V _{GD}	40	V
Gate-Source Voltage	V _{GS}	40	V
Drain-Source Voltage	V _{DS}	40	V
Gate Current	I _G	50	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPF4391		CMPF4392		CMPF4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I _{GSS}	V _{GS} =20V		0.1		0.1		0.1	nA
I _{GSS}	V _{GS} =20V, T _A =100°C		0.2		0.2		0.2	μA
I _{DSS}	V _{DS} =20V	50	150	25	75	5.0	30	mA
I _D (OFF)	V _{DS} =20V, V _{GS} =12V		0.1		-		-	nA
I _D (OFF)	V _{DS} =20V, V _{GS} =7.0V		-		0.1		-	nA
I _D (OFF)	V _{DS} =20V, V _{GS} =5.0V		-		-		0.1	nA
I _D (OFF)	V _{DS} =20V, V _{GS} =12V, T _A =100°C		0.2		-		-	μA
I _D (OFF)	V _{DS} =20V, V _{GS} =7.0V, T _A =100°C		-		0.2		-	μA
I _D (OFF)	V _{DS} =20V, V _{GS} =5.0V, T _A =100°C		-		-		0.2	μA
BV _{GSS}	I _G =1.0μA	40		40		40		V
V _{GS} (OFF)	V _{DS} =20V, I _D =1.0nA	4.0	10	2.0	5.0	0.5	3.0	V
V _{GS} (f)	I _G =1.0mA		1.0		1.0		1.0	V
V _{DS} (ON)	I _D =12mA		0.4		-		-	V
V _{DS} (ON)	I _D =6.0mA		-		0.4		-	V
V _{DS} (ON)	I _D =3.0mA		-		-		0.4	V

SYMBOL	TEST CONDITIONS	CMPF4391		CMPF4392		CMPF4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$r_{DS(ON)}$	$I_D=1.0\text{mA}$, $V_{GS}=0$		30		60		100	Ω
$r_{ds(ON)}$	$V_{GS}=0$, $I_D=0$, $f=1.0\text{kHz}$		30		60		100	Ω
C_{iss}	$V_{DS}=20\text{V}$, $V_{GS}=0$, $f=1.0\text{MHz}$		14		14		14	pF
C_{rss}	$V_{GS}=12\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$		3.5		-		-	pF
C_{rss}	$V_{GS}=7.0\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$		-		3.5		-	pF
C_{rss}	$V_{GS}=5.0\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$		-		-		3.5	pF
t_{ON}	$I_D(ON)=12\text{mA}$		15		-		-	ns
t_{ON}	$I_D(ON)=6.0\text{mA}$		-		15		-	ns
t_{ON}	$I_D(ON)=3.0\text{mA}$		-		-		15	ns
t_{OFF}	$V_{GS(OFF)}=12\text{V}$		20		-		-	ns
t_{OFF}	$V_{GS(OFF)}=7.0\text{V}$		-		35		-	ns
t_{OFF}	$V_{GS(OFF)}=5.0\text{V}$		-		-		50	ns

All dimensions in inches (mm).



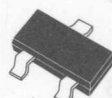
LEAD CODE:

- 1) DRAIN
- 2) SOURCE
- 3) GATE

DATA
SHEET

R2

CMPF4416A
SILICON N-CHANNEL JFET



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPF4416A type is an epoxy molded N-Channel Silicon Junction Field Effect Transistor manufactured in an SOT-23 case, designed for VHF amplifier and mixer applications.

Marking code is 6BG.

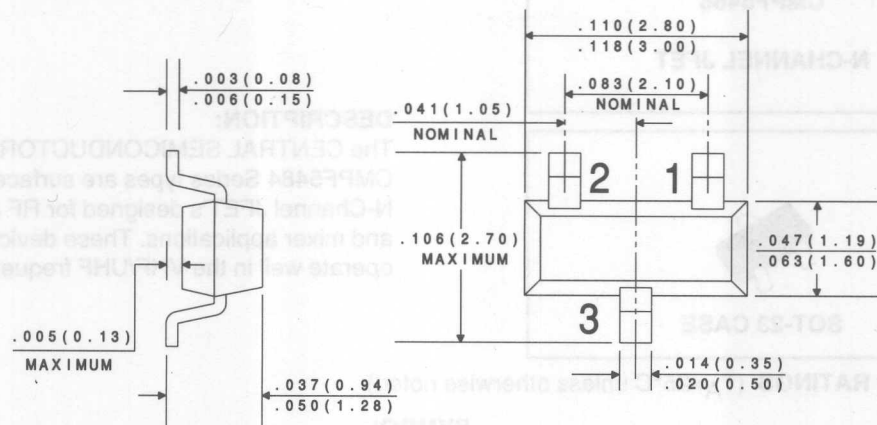
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Drain-Source Voltage	V_{DS}	35	V
Gate-Source Voltage	V_{GS}	35	V
Gate Current	I_G	10	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{GSS}	$V_{GS}=20\text{V}$		1.0	nA
I_{DSS}	$V_{DS}=15\text{V}, V_{GS}=0$	5.0	15	mA
BV_{GSS}	$I_G=1.0\mu\text{A}$	35		V
$V_{GS(off)}$	$V_{DS}=15\text{V}, I_D=1.0\text{nA}$	2.5	6.0	V
g_{fs}	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{kHz}$	4.5	7.5	mmhos
C_{iss}	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$		4.5	pF
C_{rss}	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$		1.2	pF
N_F	$V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{kHz}, R_G=1.0\text{M}\Omega$		2.5	dB

All dimensions in inches (mm).



LEAD CODE:

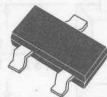
- 1) DRAIN
- 2) SOURCE
- 3) GATE

DATA
SHEET

R2

CMPF5484
CMPF5485
CMPF5486

N-CHANNEL JFET



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPF5484 Series types are surface mount, N-Channel JFET's designed for RF amplifier and mixer applications. These devices will operate well in the VHF/UHF frequency range.

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

	SYMBOL		UNITS
Gate-Drain Voltage	V _{GD}	25	V
Gate-Source Voltage	V _{GS}	25	V
Drain Current	I _D	30	mA
Gate Current	I _G	10	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

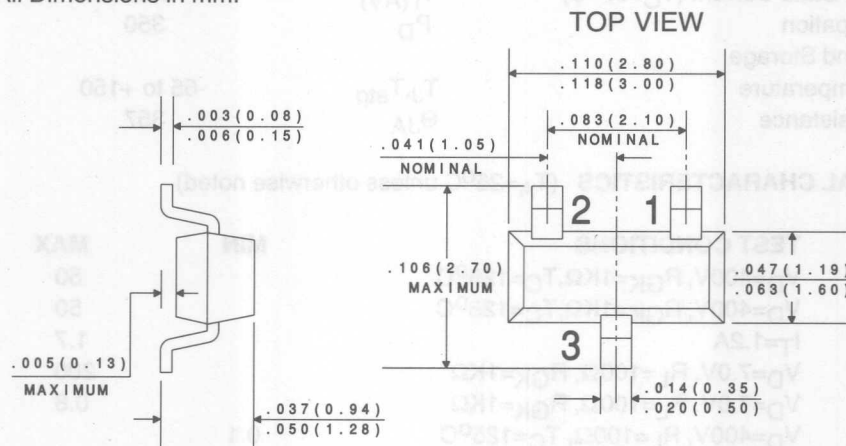
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPF5484		CMPF5485		CMPF5486		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I _{GSS}	V _{GS} =20V		1.0		1.0		1.0	nA
I _{GSS}	V _{GS} =20V, T _A =100°C		0.2		0.2		0.2	μA
I _{DSS}	V _{DS} =15V	1.0	5.0	4.0	10	8.0	20	mA
BV _{GSS}	I _G =1.0μA	25		25		25		V
V _{GS(off)}	V _{DS} =15V, I _D =10nA	0.3	3.0	0.5	4.0	2.0	6.0	V
Y _{fs}	V _{DS} =15V, V _{GS} =0, f=1.0kHz	3000	6000	3500	7000	4000	8000	μmhos
Y _{os}	V _{DS} =15V, V _{GS} =0, f=1.0kHz		50		60		75	μmhos
C _{iss}	V _{DS} =15V, V _{GS} =0, f=1.0MHz		5.0		5.0		5.0	pF
C _{oss}	V _{DS} =15V, V _{GS} =0, f=1.0MHz		2.0		2.0		2.0	pF
C _{rss}	V _{DS} =15V, V _{GS} =0, f=1.0MHz		1.0		1.0		1.0	pF
R _{e(yis)}	V _{DS} =15V, V _{GS} =0, f=100MHz		100		-		-	μmhos
R _{e(yis)}	V _{DS} =15V, V _{GS} =0, f=400MHz		-		1000		1000	μmhos
R _{e(yos)}	V _{DS} =15V, V _{GS} =0, f=100MHz		75		-		-	μmhos
R _{e(yos)}	V _{DS} =15V, V _{GS} =0, f=400MHz		-		100		100	μmhos

ELECTRICAL CHARACTERISTICS (cont'd.) ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPF5484		CMPF5485		CMPF5486		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$R_e(yfs)$	$V_{DS}=15V, V_{GS}=0, f=100\text{MHz}$	2500		-		-		μmhos
$R_e(yfs)$	$V_{DS}=15V, V_{GS}=0, f=400\text{MHz}$	-		3000		3500		μmhos
N_F	$V_{DS}=15V, V_{GS}=0, R_G=1\text{M}\Omega, f=1.0\text{kHz}$		2.5		2.5		2.5	dB
N_F	$V_{DS}=15V, I_D=1.0\text{mA}, R_G=1\text{K}\Omega, f=100\text{MHz}$		3.0		-		-	dB
N_F	$V_{DS}=15V, I_D=1.0\text{mA}, R_G=1\text{K}\Omega, f=200\text{MHz}$		4.0 TYP		-		-	dB
N_F	$V_{DS}=15V, I_D=4.0\text{mA}, R_G=1\text{K}\Omega, f=100\text{MHz}$		-		2.0		2.0	dB
N_F	$V_{DS}=15V, I_D=4.0\text{mA}, R_G=1\text{K}\Omega, f=400\text{MHz}$		-		4.0		4.0	dB
G_{PS}	$V_{DS}=15V, I_D=1.0\text{mA}, f=100\text{MHz}$	16	25	-	-	-	-	dB
G_{PS}	$V_{DS}=15V, I_D=1.0\text{mA}, f=200\text{MHz}$		14 TYP					dB
G_{PS}	$V_{DS}=15V, I_D=4.0\text{mA}, f=100\text{MHz}$		-	18	30	18	30	dB
G_{PS}	$V_{DS}=15V, I_D=4.0\text{mA}, f=400\text{MHz}$		-	10	20	10	20	dB

All Dimensions in mm.



LEAD CODE:

- 1) SOURCE
- 2) DRAIN
- 3) GATE

MARKING CODE:

- CMPF5484 - 6B
CMPF5485 - 6B1
CMPF5486 - 6H

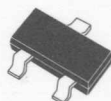
DATA
SHEET

R2

CentralTM Semiconductor Corp.

CMPS5064

SILICON CONTROLLED RECTIFIER



SOT-23 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPS5064 type is an epoxy molded PNP Silicon Controlled Rectifier manufactured in an SOT-23 case, designed for control systems and sensing circuit applications.

Marking code is P2D.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Peak Repetitive Off-State Voltage
Peak Repetitive Reverse Voltage
RMS On-State Current
Average On-State Current ($T_C=67^{\circ}\text{C}$)
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{DRM} 400
 V_{RRM} 400
 $I_{\text{T(RMS)}}$ 0.8
 $I_{\text{T(AV)}}$ 0.51
 P_{D} 350
 $T_{\text{J}}, T_{\text{stg}}$ -65 to +150
 θ_{JA} 357

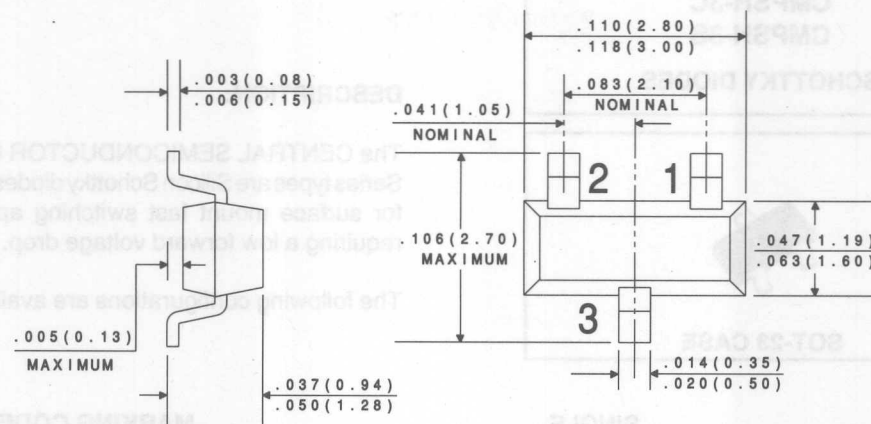
UNITS

V
V
A
A
mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{DRM}	$V_{\text{D}}=400\text{V}, R_{\text{GK}}=1\text{K}\Omega, T_{\text{C}}=125^{\circ}\text{C}$		50	μA
I_{RRM}	$V_{\text{D}}=400\text{V}, R_{\text{GK}}=1\text{K}\Omega, T_{\text{C}}=125^{\circ}\text{C}$		50	μA
V_{T}	$I_{\text{T}}=1.2\text{A}$		1.7	V
I_{GT}	$V_{\text{D}}=7.0\text{V}, R_{\text{L}}=100\Omega, R_{\text{GK}}=1\text{K}\Omega$		200	μA
V_{GT}	$V_{\text{D}}=7.0\text{V}, R_{\text{L}}=100\Omega, R_{\text{GK}}=1\text{K}\Omega$		0.8	V
V_{GD}	$V_{\text{D}}=400\text{V}, R_{\text{L}}=100\Omega, T_{\text{C}}=125^{\circ}\text{C}$	0.1		V
I_{H}	$V_{\text{D}}=7.0, R_{\text{GK}}=1\text{K}\Omega$		5.0	mA
t_{ON}	$V_{\text{D}}=400\text{V}, I_{\text{GT}}=1.0\text{mA}, R_{\text{GK}}=1.0\Omega, di/dt=6.0\text{A}/\mu\text{s}$	2.8 TYP		μs

All dimensions in inches (mm).



LEAD CODE:

- 1) CATHODE
- 2) GATE
- 3) ANODE

DATA
SHEET

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
B_{VR}	$I_F=100\mu A$	30			V
V_F	$I_F=0.01A$		0.33	0.38	V
V_F	$I_F=15mA$		0.40	0.45	V
V_F	$I_F=100mA$		0.74	1.00	V
I_n	$V_F=25V$		50	500	nA
I_F	$V_F=25V, T_A=100^\circ C$		25	100	μA
C_T	$V_F=1.0V, f=1MHz$		7.0		pF
f_T	$I_F=10mA, I_{F1}=10mA, R_F=100\Omega$			5.0	ns

**CMP SH-3
CMP SH-3A
CMP SH-3C
CMP SH-3S**

SCHOTTKY DIODES

Central™
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMP SH-3 Series types are Silicon Schottky diodes designed for surface mount fast switching applications requiring a low forward voltage drop.

The following configurations are available:

SOT-23 CASE

CMP SH-3
CMP SH-3A
CMP SH-3C
CMP SH-3S

SINGLE
DUAL, COMMON ANODE
DUAL, COMMON CATHODE
DUAL, IN SERIES

MARKING CODE: D95
MARKING CODE: DB1
MARKING CODE: DB2
MARKING CODE: DA5

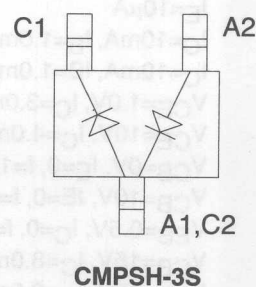
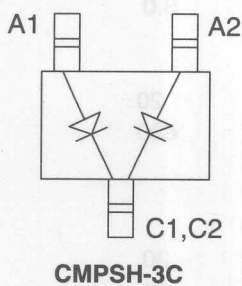
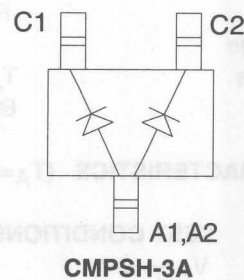
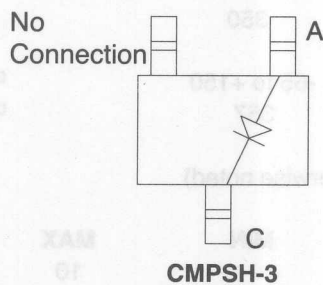
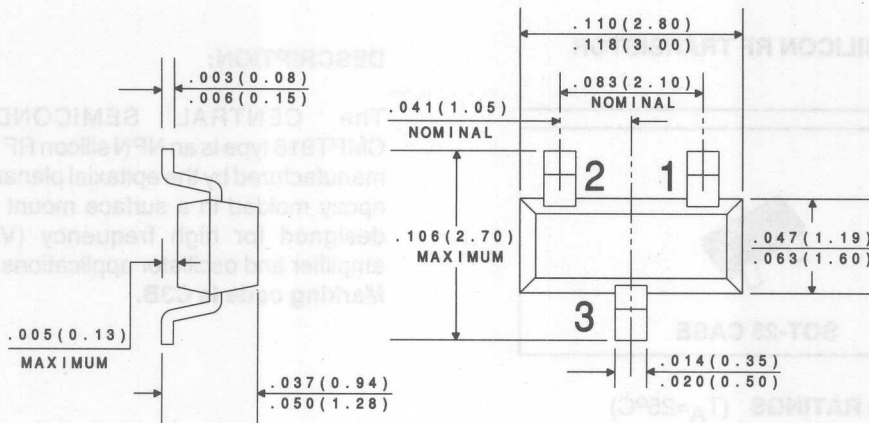
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	30	V
Continuous Forward Current	I_F	100	mA
Peak Repetitive Forward Current	I_{FRM}	350	mA
Forward Surge Current, $t_p=10$ ms	I_{FSM}	750	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
B_{VR}	$I_R=100\mu\text{A}$	30			V
V_F	$I_F=2.0\text{mA}$		0.29	0.33	V
V_F	$I_F=15\text{mA}$		0.40	0.45	V
V_F	$I_F=100\text{mA}$		0.74	1.00	V
I_R	$V_R=25\text{V}$		90	500	nA
I_R	$V_R=25\text{V}, T_A=100^{\circ}\text{C}$		25	100	μA
C_T	$V_R=1.0\text{V}, f=1\text{ MHz}$		7.0		pF
t_{rr}	$I_F=I_R=10\text{mA}, I_{rr}=1.0\text{mA}, R_L=100\Omega$			5.0	ns

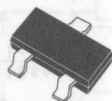
All dimensions in inches (mm).



DATA
SHEET

CMPT918

NPN SILICON RF TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT918 type is an NPN silicon RF transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high frequency (VHF/UHF) amplifier and oscillator applications.

Marking code is C3B.

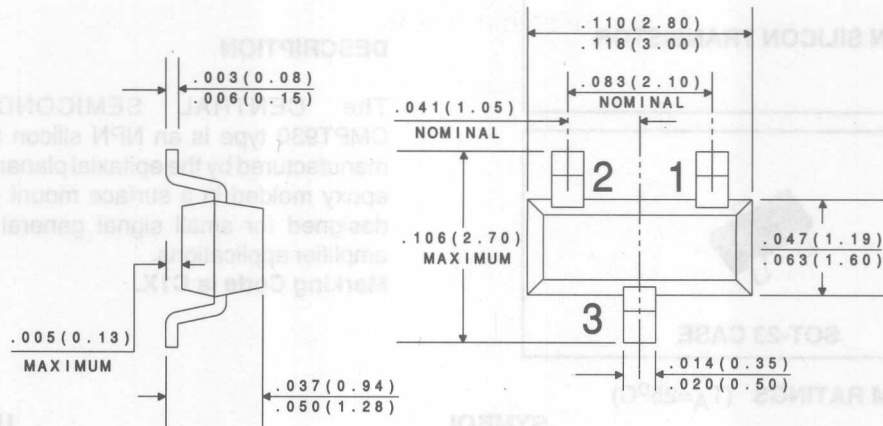
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	30	V
Collector-Emitter Voltage	V _{CEO}	15	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current	I _C	50	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =15V		10	nA
BV _{CB0}	I _C =1.0μA	30		V
BV _{CEO}	I _C =3.0mA	15		V
BV _{EBO}	I _E =10μA	3.0		V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA		0.4	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA		1.0	V
h _{FE}	V _{CE} =1.0V, I _C =3.0mA	20		
f _T	V _{CE} =10V, I _C =4.0mA, f=100MHz	600		MHz
C _{ob}	V _{CB} =0V, I _E =0, f=1.0MHz		3.0	pF
C _{ob}	V _{CB} =10V, I _E =0, f=1.0MHz		1.7	pF
C _{ib}	V _{EB} =0.5V, I _C =0, f=1.0MHz		2.0	pF
P _{out}	V _{CB} =15V, I _C =8.0mA, f=500MHz	30		mW
G _{pe}	V _{CB} =12V, I _C =6.0mA, f=200MHz	11		dB
NF	V _{CE} =6.0V, I _C =1.0mA, R _S =50Ω, f=60MHz		6.0	dB

All dimensions in inches (mm).



LEAD CODE:

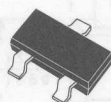
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT930

NPN SILICON TRANSISTOR



SOT-23 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPT930 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose amplifier applications.

Marking Code is C1X.

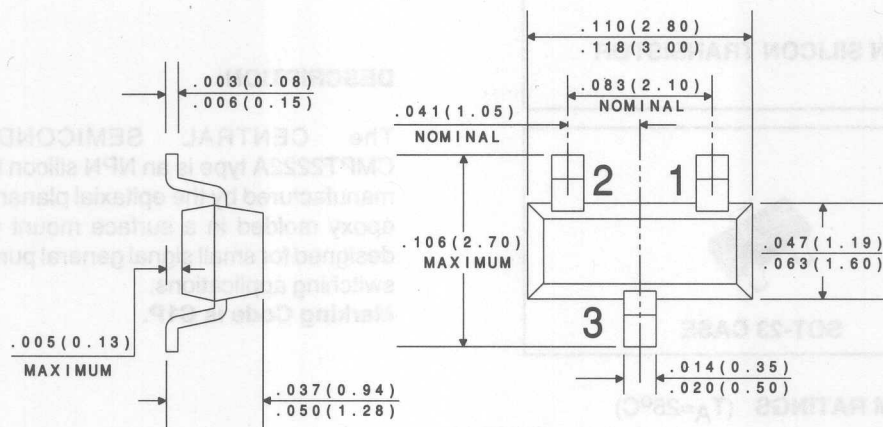
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	45	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	30	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=45\text{V}$		10	nA
I_{CEO}	$V_{CE}=5.0\text{V}$		10	nA
I_{CES}	$V_{CE}=45\text{V}$		10	nA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	45		V
BV_{CEO}	$I_C=10\text{mA}$	45		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	0.6	1.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	100	300	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}$	150		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$		600	
f_T	$V_{CE}=5.0\text{V}, I_C=500\text{mA}, f=30\text{MHz}$	30		MHz
C_{ob}	$V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$		8.0	pF
NF	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, R_S=10\text{k}\Omega, f=10\text{Hz to } 15.7\text{kHz}$		3.0	dB

All dimensions in inches (mm).



LEAD CODE:

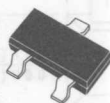
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT2222A

NPN SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

Marking Code is C1P.

MAXIMUM RATINGS (T_A=25°C)

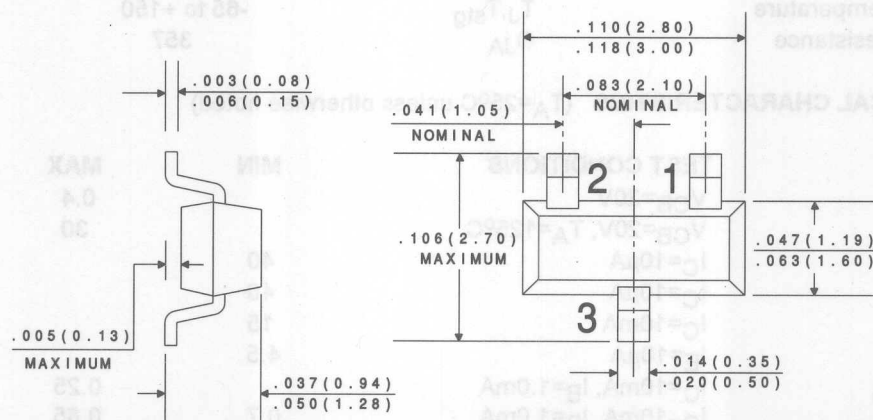
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	75	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	600	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =60V		10	nA
I _{CBO}	V _{CB} =60V, T _A =125°C		10	μA
I _{CEV}	V _{CE} =60V, V _{EB} =3.0V		10	nA
I _{EBO}	V _{EB} =3.0V		10	nA
BV _{CB0}	I _C =10μA	75		V
BV _{CEO}	I _C =10mA	40		V
BV _{EBO}	I _E =10μA	6.0		V
V _{CE} (SAT)	I _C =150mA, I _B =15mA		0.3	V
V _{CE} (SAT)	I _C =500mA, I _B =50mA		1.0	V
V _{BE} (SAT)	I _C =150mA, I _B =15mA	0.6	1.2	V
V _{BE} (SAT)	I _C =500mA, I _B =50mA		2.0	V
h _{FE}	V _{CE} =10V, I _C =0.1mA	35		
h _{FE}	V _{CE} =10V, I _C =1.0mA	50		
h _{FE}	V _{CE} =10V, I _C =10mA	75		
h _{FE}	V _{CE} =1.0V, I _C =150mA	50		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=10V, I_C=500mA$	40		
f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	300		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		25	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	k Ω
h_{ie}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$		8.0	$\times 10^{-4}$
h_{re}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$		4.0	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	
h_{fe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	μ hos
h_{oe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	μ hos
$rb'C_c$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$		150	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$		4.0	dB
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		25	ns
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	225		ns
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	60		ns

All dimensions in inches (mm).



LEAD CODE:

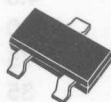
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT2369

NPN SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT2369 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for ultra high speed switching applications.

Marking Code is C1J.

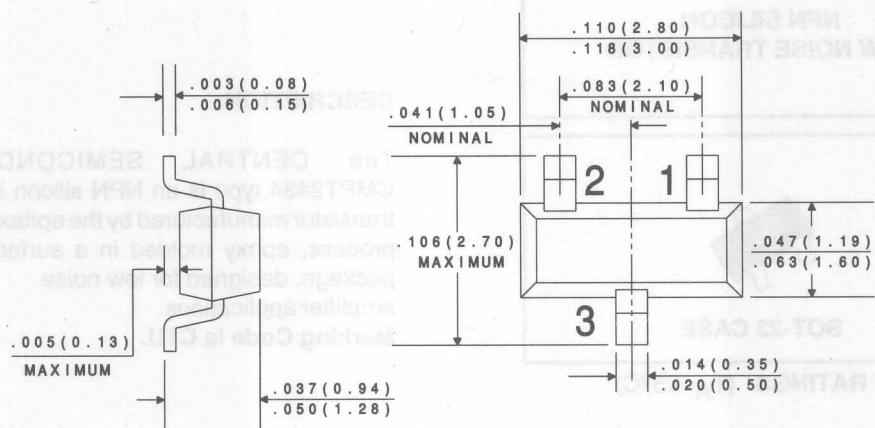
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	40	V
Collector-Emitter Voltage	V _{CES}	40	V
Collector-Emitter Voltage	V _{CEO}	15	V
Emitter-Base Voltage	V _{EBO}	4.5	V
Collector Current	I _C	500	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =20V		0.4	μA
I _{CBO}	V _{CB} =20V, T _A =125°C		30	μA
BV _{CB0}	I _C =10μA	40		V
BV _{CES}	I _C =10μA	40		V
BV _{CEO}	I _C =10mA	15		V
BV _{EBO}	I _E =10μA	4.5		V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA		0.25	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA	0.7	0.85	V
h _{FE}	V _{CE} =1.0V, I _C =10mA	40		
h _{FE}	V _{CE} =2.0V, I _C =100mA	20		
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz		4.0	pF
f _T	V _{CE} =10V, I _C =10mA, f=100MHz	500		MHz
t _s	V _{CC} =3.0V, I _C =I _{B1} =I _{B2} =10mA		13	ns
t _{on}	V _{CC} =3.0V, I _C =10mA, I _{B1} =3.0mA		12	ns
t _{off}	V _{CC} =3.0V, I _C =10mA, I _{B1} =3.0mA, I _{B2} =1.5mA		18	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT2484

NPN SILICON
LOW NOISE TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT2484 type is an NPN silicon low noise transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for low noise amplifier applications.

Marking Code is C1U.

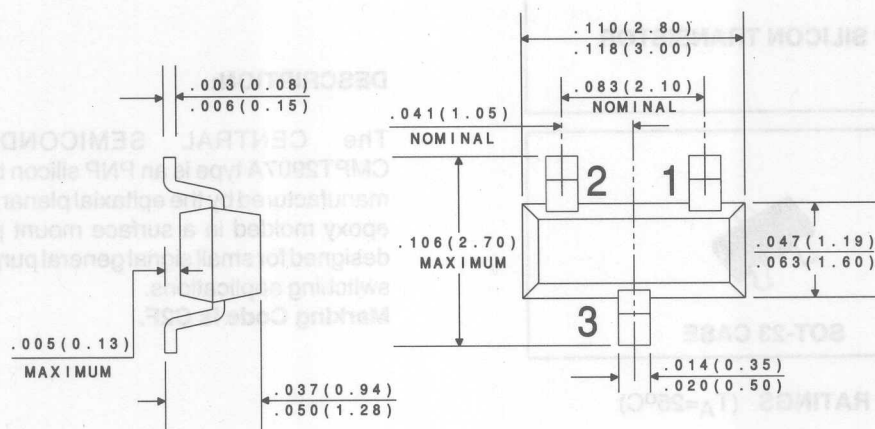
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	50	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=45\text{V}$		10	nA
I_{CBO}	$V_{CB}=45\text{V}, T_A=150^\circ\text{C}$		10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		V
BV_{CEO}	$I_C=10\text{mA}$	60		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=1.0\text{mA}, I_B=100\mu\text{A}$		0.35	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$		0.95	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	250	---	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	---	800	
C_{ob}	$V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$		6.0	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		6.0	pF
NF	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}, R_S=10\text{k}\Omega$ $f=1.0\text{kHz}, BW=200\text{Hz}$		3.0	dB

All dimensions in inches (mm).



UNITS	SYMBOL	MAXIMUM RATINGS (TA=25°C)
V	V _{CE}	60
V	V _{BE}	80
V	V _{EB}	5.0
mA	I _C	300
mW	P _D	350
°C	T _J	-55 to +150
°C/W	θ _{JA}	357

LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

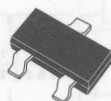
UNITS	TEST CONDITIONS	SYMBOL
mA	V _{CE} =30V	I _{CB}
mA	V _{CE} =30V, T _A =125°C	I _{CB}
mA	V _{CE} =30V, V _{BE} =0.5V	I _{CEV}
V	I _C =10μA	V _{CE(sat)}
V	I _C =10mA	V _{CE(sat)}
V	I _C =10μA	V _{BE(sat)}
V	I _C =150mA, I _B =15mA	V _{CE(sat)}
V	I _C =200mA, I _B =20mA	V _{CE(sat)}
V	I _C =150mA, I _B =15mA	V _{BE(sat)}
V	I _C =200mA, I _B =20mA	V _{BE(sat)}
	V _{CE} =10V, I _C =0.1mA	r _{FE}
	V _{CE} =10V, I _C =10mA	r _{FE}
	V _{CE} =10V, I _C =10mA	r _{FE}
	V _{CE} =10V, I _C =10mA	r _{FE}

DATA
SHEET

R2

CMPT2907A

PNP SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT2907A type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

Marking Code is C2F.

MAXIMUM RATINGS (T_A=25°C)

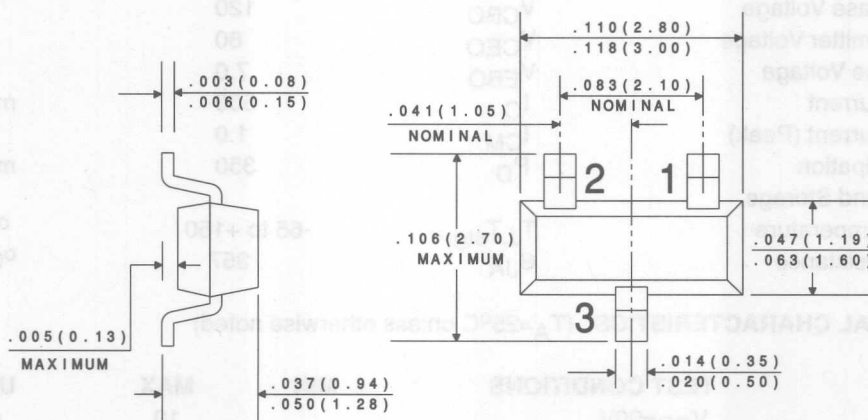
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CEO}	60	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	600	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =50V		10	nA
I _{CBO}	V _{CB} =50V, T _A =125°C		10	μA
I _{CEV}	V _{CE} =30V, V _{BE} =0.5V		50	nA
BV _{CB0}	I _C =10μA	60		V
BV _{CEO}	I _C =10mA	60		V
BV _{EBO}	I _E =10μA	5.0		V
V _{CE(SAT)}	I _C =150mA, I _B =15mA		0.4	V
V _{CE(SAT)}	I _C =500mA, I _B =50mA		1.6	V
V _{BE(SAT)}	I _C =150mA, I _B =15mA		1.3	V
V _{BE(SAT)}	I _C =500mA, I _B =50mA		2.6	V
h _{FE}	V _{CE} =10V, I _C =0.1mA	75		
h _{FE}	V _{CE} =10V, I _C =1.0mA	100		
h _{FE}	V _{CE} =10V, I _C =10mA	100		
h _{FE}	V _{CE} =10V, I _C =150mA	100	300	

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=500mA$	50		
f_T	$V_{CE}=20V, I_C=50mA, f=100MHz$	200		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{BE}=2.0V, I_C=0, f=1.0MHz$		30	pF
t_{on}	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		45	ns
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		40	ns
t_{off}	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		100	ns
t_s	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		80	ns
t_f	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		30	ns

All dimensions in inches (mm).



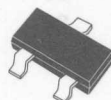
LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT3019
NPN SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPT3019 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for very high current, general purpose amplifier applications.

Marking Code is C3A.

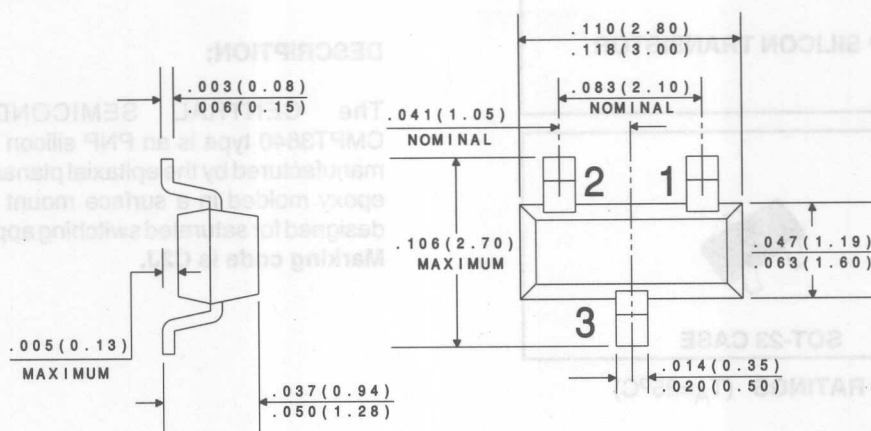
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	120	V
Collector-Emitter Voltage	V_{CE0}	80	V
Emitter-Base Voltage	V_{EB0}	7.0	V
Collector Current	I_C	500	mA
Collector Current (Peak)	I_{CM}	1.0	A
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=90\text{V}$		10	nA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=100\mu\text{A}$	120		V
BV_{CEO}	$I_C=30\text{mA}$	80		V
BV_{EBO}	$I_E=100\mu\text{A}$	7.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.2	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.5	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.1	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	50		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	90		
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	50		
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=1.0\text{MHz}$	100		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		12	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		60	pF
NF	$V_{CE}=10\text{V}, I_C=100\text{mA}, R_S=1\text{k}\Omega, f=1.0\text{kHz}$		4.0	dB

All dimensions in inches (mm).



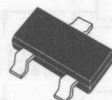
LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA SHEET

CMPT3640

PNP SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT3640 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for saturated switching applications.

Marking code is C2J.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

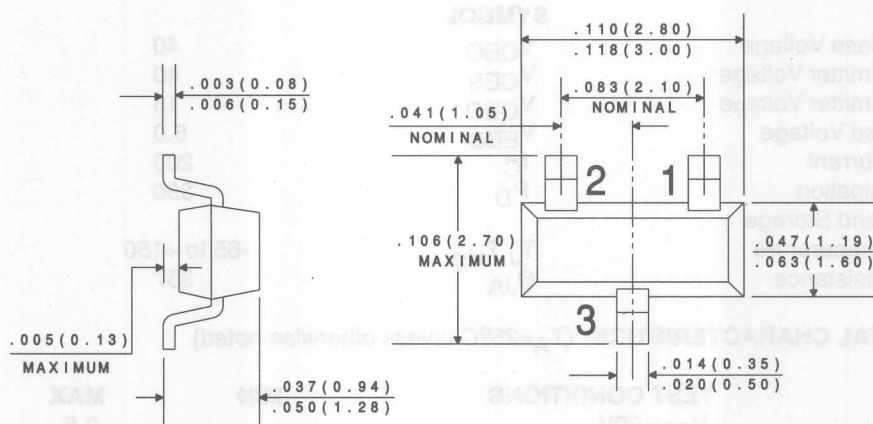
	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	12	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current	I_C	80	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CES}	$V_{CE}=6.0\text{V}$		10	nA
I_{CES}	$V_{CE}=6.0\text{V}, T_A=65^\circ\text{C}$		10	μA
I_B	$V_{CE}=6.0\text{V}, V_{EB}=0$		10	nA
BV_{CBO}	$I_C=100\mu\text{A}$	12		V
BV_{CEO}	$I_C=10\text{mA}$	12		V
BV_{EBO}	$I_E=100\mu\text{A}$	4.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.60	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}, T_A=65^\circ\text{C}$		0.25	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	0.75	0.95	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.80	1.00	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		1.50	V
h_{FE}	$V_{CE}=0.3\text{V}, I_C=10\text{mA}$	30	120	

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=1.0V, I_C=50mA$	20		
f_T	$V_{CE}=5.0V, I_C=10mA, f=100MHz$	500		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		3.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		3.5	pF
t_d	$V_{CC}=6.0V, V_{BE}=1.9, I_C=50mA, I_{B1}=5.0mA$		10	ns
t_r	$V_{CC}=6.0V, V_{BE}=1.9, I_C=50mA, I_{B1}=5.0mA$		30	ns
t_s	$V_{CC}=6.0V, I_C=50mA, I_{B1}=I_{B2}=5.0mA$		20	ns
t_f	$V_{CC}=6.0V, I_C=50mA, I_{B1}=I_{B2}=5.0mA$		12	ns
t_{on}	$V_{CC}=6.0V, V_{BE}=1.9, I_C=50mA, I_{B1}=5.0mA$		25	ns
t_{on}	$V_{CC}=1.5V, I_C=10mA, I_{B1}=0.5mA$		60	ns
t_{off}	$V_{CC}=6.0V, V_{BE}=1.9, I_C=50mA, I_{B1}=5.0mA$		35	ns
t_{off}	$V_{CC}=1.5V, I_C=10mA, I_{B1}=I_{B2}=0.5mA$		75	ns

All dimensions in inches (mm).



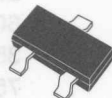
LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT3646
NPN SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT3646 type is an NPN Silicon Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current, ultra high speed switching applications.

Marking code is C2R.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

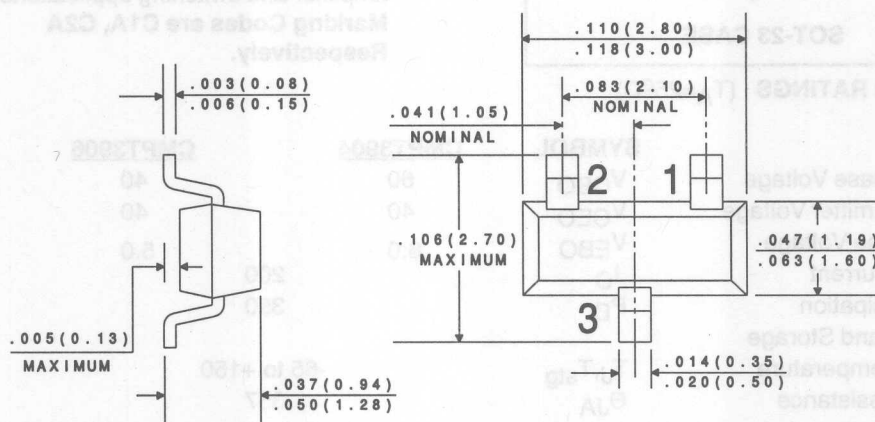
	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CES}	40	V
Collector-Emitter Voltage	V_{CEO}	15	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	200	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CES}	$V_{CE}=20\text{V}$		0.5	μA
I_{CES}	$V_{CE}=20\text{V}, T_A=65^{\circ}\text{C}$		3.0	μA
BV_{CBO}	$I_C=100\mu\text{A}$	40		V
BV_{CES}	$I_C=10\mu\text{A}$	40		V
BV_{CEO}	$I_C=10\text{mA}$	15		V
BV_{EBO}	$I_E=100\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=30\text{mA}, I_B=3.0\text{mA}$		0.20	V
$V_{CE(SAT)}$	$I_C=30\text{mA}, I_B=3.0\text{mA}, T_A=65^{\circ}\text{C}$		0.30	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		0.28	V
$V_{CE(SAT)}$	$I_C=300\text{mA}, I_B=30\text{mA}$		0.50	V
$V_{BE(SAT)}$	$I_C=30\text{mA}, I_B=3.0\text{mA}$	0.75	0.95	V
$V_{BE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		1.20	V
$V_{BE(SAT)}$	$I_C=300\text{mA}, I_B=30\text{mA}$		1.70	V
h_{FE}	$V_{CE}=0.4\text{V}, I_C=30\text{mA}$	30	120	
h_{FE}	$V_{CE}=0.5\text{V}, I_C=100\text{mA}$	25		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=1.0V, I_C=300mA$	15		
f_T	$V_{CE}=10V, I_C=30mA, f=100MHz$	350		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		5.0	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0	pF
t_{on}	$V_{CC}=10V, I_C=300mA, I_{B1}=30mA$		18	ns
t_{off}	$V_{CC}=10V, I_C=300mA, I_{B1}=I_{B2}=30mA$		28	ns
t_s	$V_{CC}=10V, I_C=I_{B1}=I_{B2}=10mA$		18	ns

All dimensions in inches (mm).



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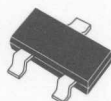
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT3904 NPN
CMPT3906 PNP

COMPLEMENTARY
SILICON TRANSISTORS



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT3904, CMPT3906 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose amplifier and switching applications.

**Marking Codes are C1A, C2A
Respectively.**

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

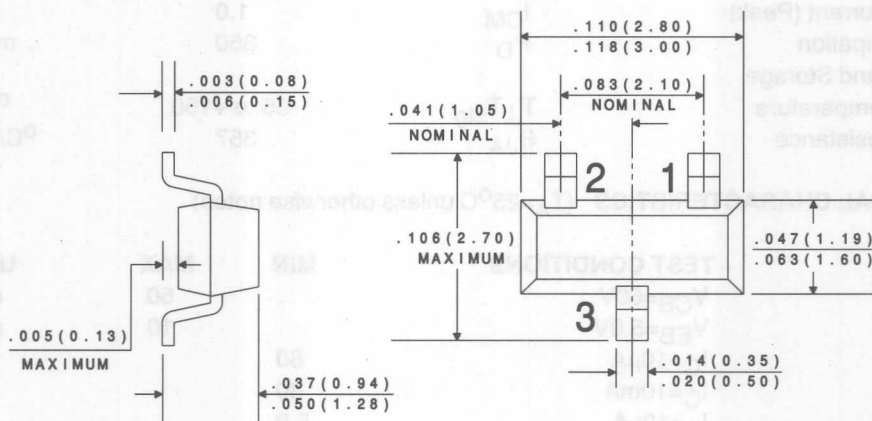
	SYMBOL	CMPT3904	CMPT3906	UNITS
Collector-Base Voltage	V_{CBO}	60	40	V
Collector-Emitter Voltage	V_{CEO}	40	40	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	200		mA
Power Dissipation	P_D	350		mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT3904		CMPT3906		UNITS
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
I_{BL}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50			nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		40		V
BV_{CEO}	$I_C=1.0\text{mA}$	40		40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20		0.25	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.30		0.40	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.95		0.95	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70		80		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	300	100	300	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	60		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	30		30		

SYMBOL	TEST CONDITIONS	CMPT3904		CMPT3906		UNITS
		MIN	MAX	MIN	MAX	
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300		250		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0		4.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0		10	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	10	2.0	12	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	100	400	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	40	3.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100mA, R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$		5.0		4.0	dB
t_d	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_r	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_s	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200		225	ns
t_f	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50		75	ns

All dimensions in inches (mm).



LEAD CODE:

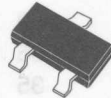
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

CentralTM Semiconductor Corp.

CMPT4033

PNP SILICON TRANSISTOR



SOT-23 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPT4033 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for very high current, general purpose amplifier applications.

Marking Code is C4A.

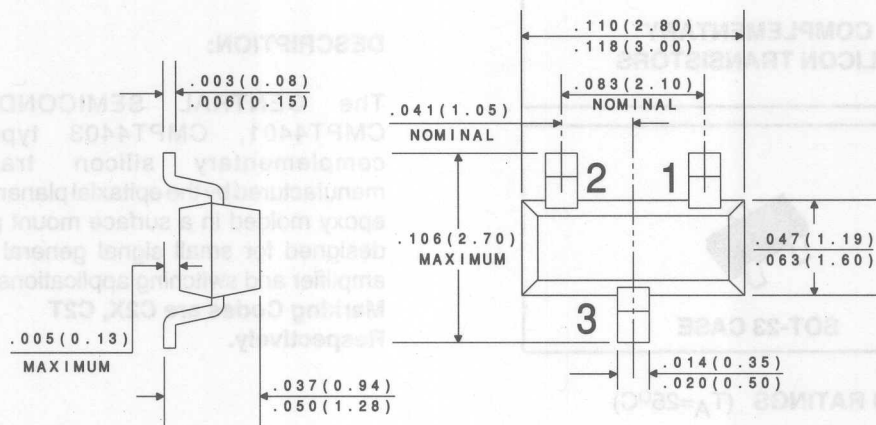
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	80	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	500	mA
Collector Current (Peak)	I_{CM}	1.0	A
Power Dissipation	P_D	350	mW
Operating and Storage			$^{\circ}\text{C}$
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$		50	nA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	80		V
BV_{CEO}	$I_C=10\text{mA}$	80		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.15	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.50	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.90	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.10	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=0.1\text{mA}$	75		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	100	300	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	70		
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=1.0\text{MHz}$	100		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		20	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		110	pF

All dimensions in inches (mm).



LEAD CODE:

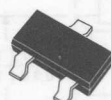
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT4401 NPN
CMPT4403 PNP

COMPLEMENTARY
SILICON TRANSISTORS



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT4401, CMPT4403 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose amplifier and switching applications.

**Marking Codes are C2X, C2T
Respectively.**

MAXIMUM RATINGS (T_A=25°C)

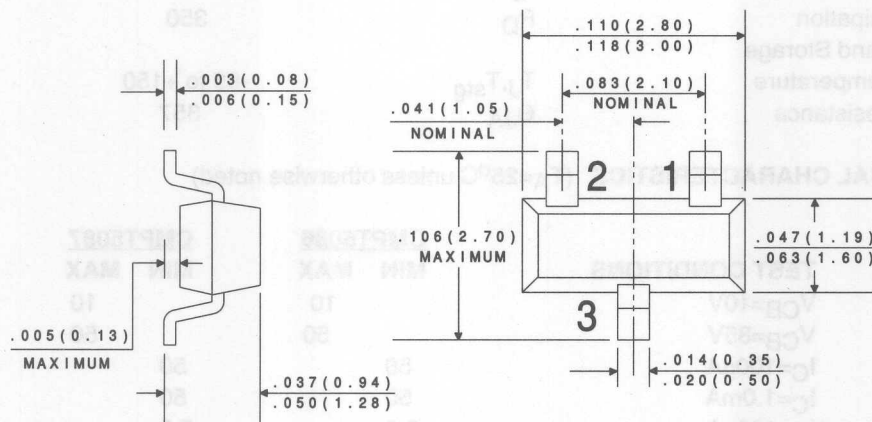
	SYMBOL	CMPT4401	CMPT4403	UNITS
Collector-Base Voltage	V _{CBO}	60	40	V
Collector-Emitter Voltage	V _{CEO}	40	40	V
Emitter-Base Voltage	V _{EBO}	6.0	5.0	V
Collector Current	I _C	600		mA
Power Dissipation	P _D	350		mW
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JA}	357		°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT4401		CMPT4403		UNITS
		MIN	MAX	MIN	MAX	
I _{CEV}	V _{CE} =35V, V _{EB} =0.4V		0.1		0.1	μA
I _{BEV}	V _{CE} =35V, V _{EB} =0.4V		0.1		0.1	μA
BV _{CBO}	I _C =100μA	60		40		V
BV _{CEO}	I _C =1.0mA	40		40		V
BV _{EBO}	I _E =100μA	6.0		5.0		V
V _{CE(SAT)}	I _C =150mA, I _B =15mA		0.40		0.40	V
V _{CE(SAT)}	I _C =500mA, I _B =50mA		0.75		0.75	V
V _{BE(SAT)}	I _C =150mA, I _B =15mA	0.75	0.95	0.75	0.95	V
V _{BE(SAT)}	I _C =500mA, I _B =50mA		1.2		1.3	V
h _{FE}	V _{CE} =1.0V, I _C =0.1mA	20		30		
h _{FE}	V _{CE} =1.0V, I _C =1.0mA	40		60		
h _{FE}	V _{CE} =1.0V, I _C =10mA	80		100		

h_{FE}	$V_{CE}=1.0V, I_C=150mA$	100	300	-	-	
h_{FE}	$V_{CE}=2.0V, I_C=150mA$	-	-	100	300	
h_{FE}	$V_{CE}=2.0V, I_C=500mA$	40		20		
f_T	$V_{CE}=10V, I_C=20mA, f=100MHz$	250		200		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		6.5		8.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		30		30	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	15	1.5	15	$k\Omega$
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.1	8.0	0.1	8.0	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	40	500	60	500	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	30	1.0	100	$\mu mhos$
t_d	$V_{CC}=30V, V_{BE}=2.0, I_C=150mA, I_{B1}=15mA$		15		15	ns
t_r	$V_{CC}=30V, V_{BE}=2.0, I_C=150mA, I_{B1}=15mA$		20		20	ns
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		225		225	ns
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		30		30	ns

All dimensions in inches (mm).



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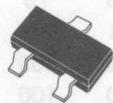
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT5086
CMPT5087

PNP SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT5086, CMPT5087 types are PNP silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring high gain and low noise.

Marking Codes are C2P and C2Q Respectively.

MAXIMUM RATINGS (T_A=25°C)

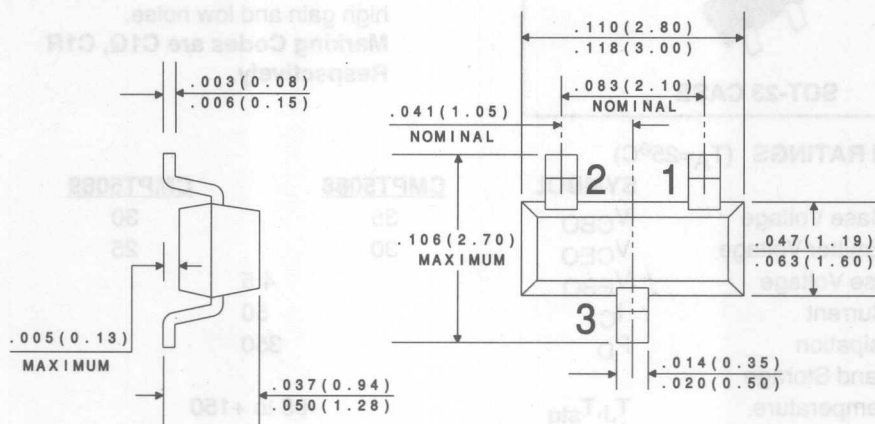
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	50	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	3.0	V
Collector Current	I _C	50	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT5086		CMPT5087		UNITS
		MIN	MAX	MIN	MAX	
I _{CBO}	V _{CB} =10V		10		10	nA
I _{CBO}	V _{CB} =35V		50		50	nA
BV _{CB0}	I _C =100μA	50		50		V
BV _{CEO}	I _C =1.0mA	50		50		V
BV _{EBO}	I _E =100μA	3.0		3.0		V
V _{CE} (SAT)	I _C =10mA, I _B =1.0mA		0.30		0.30	V
V _{BE} (SAT)	I _C =10mA, I _B =1.0mA		0.85		0.85	V
h _{FE}	V _{CE} =5.0V, I _C =0.1mA	150	500	250	800	
h _{FE}	V _{CE} =5.0V, I _C =1.0mA	150		250		
h _{FE}	V _{CE} =5.0V, I _C =10mA	150		250		
f _T	V _{CE} =5.0V, I _C =500μA, f=20MHz	40		40		MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz		4.0		4.0	pF
h _{fe}	V _{CE} =5.0V, I _C =1.0mA, f=1.0kHz	150	600	250	900	

SYMBOL	TEST CONDITIONS	CMPT5086		CMPT5087		UNITS
		MIN	MAX	MIN	MAX	
NF	$V_{CE}=5.0V$, $I_C=20mA$, $R_S=10k\Omega$ $f=10Hz$ to $15.7kHz$		3.0		2.0	dB
NF	$V_{CE}=5.0V$, $I_C=100\mu A$, $R_S=3.0k\Omega$, $f=1.0kHz$		3.0		2.0	dB

All dimensions in inches (mm).

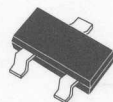


LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT5089**NPN SILICON TRANSISTORS****SOT-23 CASE****Semiconductor Corp.****DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT5088, CMPT5089 types are NPN silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring high gain and low noise.

**Marking Codes are C1Q, C1R
Respectively.**

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

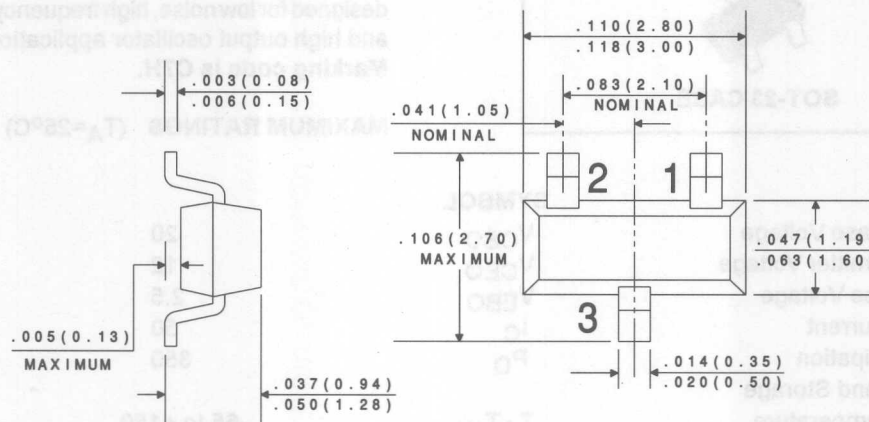
	SYMBOL	CMPT5088	CMPT5089	UNITS
Collector-Base Voltage	V_{CB0}	35	30	V
Collector-Emitter Voltage	V_{CEO}	30	25	V
Emitter-Base Voltage	V_{EBO}	4.5		V
Collector Current	I_C	50		mA
Power Dissipation	P_D	350		mW
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT5088		CMPT5089		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=20\text{V}$		50		-	nA
I_{CBO}	$V_{CB}=15\text{V}$		-		50	nA
I_{EBO}	$V_{EB}=3.0\text{V}$		50		-	nA
I_{EBO}	$V_{EB}=4.5\text{V}$		-		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	35		30		V
BV_{CEO}	$I_C=1.0\text{mA}$	30		25		V
BV_{EBO}	$I_E=100\mu\text{A}$	4.5		4.5		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.5		0.5	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.8		0.8	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=0.1\text{mA}$	300	900	400	1200	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	350		450		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	300		400		
f_T	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}, f=20\text{MHz}$	50		50		MHz
C_{ob}	$V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$		4.0		4.0	pF

SYMBOL	TEST CONDITIONS	CMPT5088		CMPT5089		UNITS
		MIN	MAX	MIN	MAX	
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		10		10	pF
h_{fe}	$V_{CE}=5.0V, I_C=1.0mA, f=1.0kHz$	350	1400	450	1800	
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=10k\Omega$ $f=10Hz$ to $15.7kHz$		3.0		2.0	dB

All dimensions in inches (mm).



LEAD CODE:

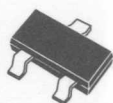
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT5179

NPN SILICON RF TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT5179 type is an NPN silicon RF transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for low noise, high frequency amplifier and high output oscillator applications. Marking code is C7H.

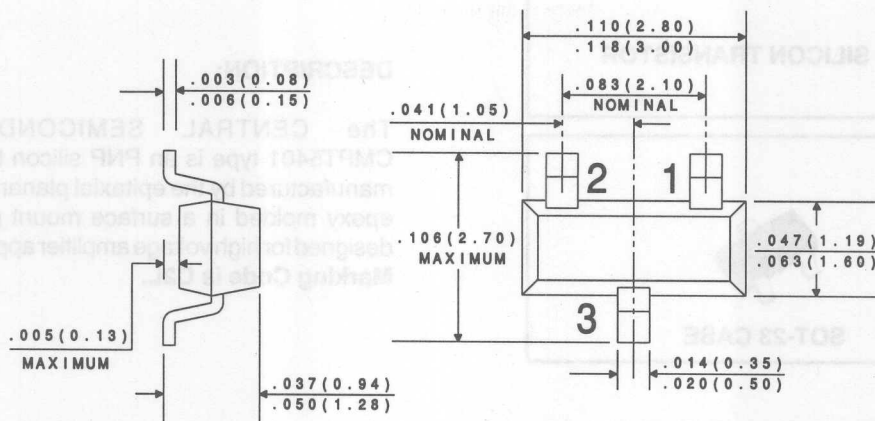
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	20	V
Collector-Emitter Voltage	V _{CEO}	12	V
Emitter-Base Voltage	V _{EBO}	2.5	V
Collector Current	I _C	50	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{CBO}	V _{CB} =15V			20	nA
BV _{CB0}	I _C =10μA	20			V
BV _{CEO}	I _C =3.0mA	12			V
BV _{EBO}	I _E =10μA	2.5			V
V _{CE} (SAT)	I _C =10mA, I _B =1.0mA			0.4	V
V _{BE} (SAT)	I _C =10mA, I _B =1.0mA			1.0	V
h _{FE}	V _{CE} =1.0V, I _C =3.0mA	25			
f _T	V _{CE} =6.0V, I _C =5.0mA, f=100MHz	900	1450		MHz
C _{cb}	V _{CB} =10V, I _E =0, f=0.1 to 1.0MHz			1.0	pF
h _{fe}	V _{CE} =6.0V, I _C =2.0, f=1.0kHz	25			
G _{pe}	V _{CE} =6.0V, I _C =5.0mA, f=200MHz	15			dB
NF	V _{CE} =6.0V, I _C =1.5mA, R _S =50Ω, f=200MHz			4.5	dB

All dimensions in inches (mm).



LEAD CODE:

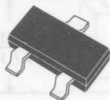
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT5401

PNP SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT5401 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications.

Marking Code is C2L.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	160	V
Collector-Emitter Voltage	V_{CEO}	150	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=100\text{V}$		50	nA
I_{CBO}	$V_{CB}=100\text{V}, T_A=150^\circ\text{C}$		50	μA
BV_{CBO}	$I_C=100\mu\text{A}$	160		V
BV_{CEO}	$I_C=1.0\text{mA}$	150		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.2	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.5	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		1.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	50		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	60	240	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$	50		
f_T	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	300	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		6.0	pF

SYMBOL

h_{fe}
NF

TEST CONDITIONS

$V_{CE}=10V$, $I_C=1.0mA$, $f=1.0kHz$
 $V_{CE}=5.0V$, $I_C=200\mu A$, $R_S=10\Omega$
 $f=10Hz$ to $15.7kHz$

MIN

MAX

UNITS

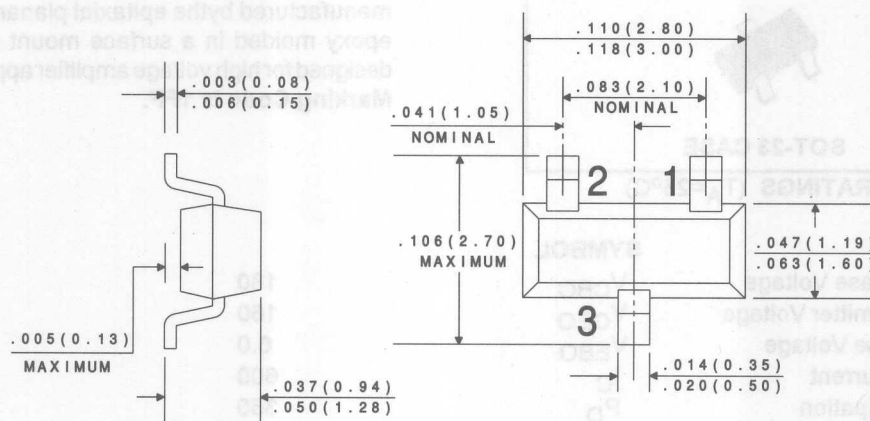
40

200

8.0

dB

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CentralTM Semiconductor Corp.

CMPT5551

NPN SILICON TRANSISTOR



SOT-23 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT5551 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications. Marking Code is 1FF.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=120\text{V}$		50	nA
I_{CBO}	$V_{CB}=120\text{V}, T_A=100^\circ\text{C}$		50	μA
BV_{CBO}	$I_C=100\mu\text{A}$	180		V
BV_{CEO}	$I_C=1.0\text{mA}$	160		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.15	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.20	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		1.00	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		1.00	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	80		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	80	250	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$	30		
f_T	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	300	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		6.0	pF

SYMBOL

 h_{fe}
 N_F

TEST CONDITIONS

 $V_{CE}=10V$, $I_C=1.0mA$, $f=1.0kHz$
 $V_{CE}=5.0V$, $I_C=200\mu A$, $R_S=10\Omega$
 $f=10Hz$ to $15.7kHz$

MIN

50

MAX

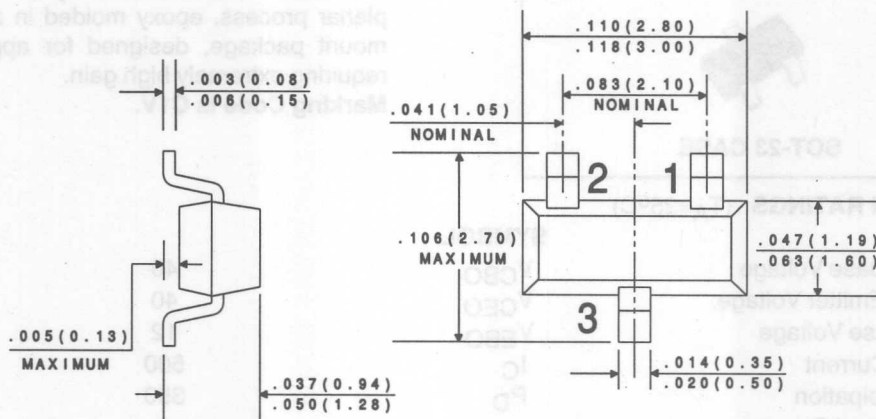
200

UNITS

8.0

dB

All dimensions in inches (mm).



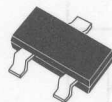
LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT6427
NPN SILICON
DARLINGTON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT6427 type is a NPN Silicon Darlington Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

Marking Code is C1V.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	12	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Junction Temperature	θ_{JA}	357	$^{\circ}\text{C/W}$
Thermal Resistance			

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=30\text{V}$		50	nA
I_{CEO}	$V_{CE}=25\text{V}$		1.0	μA
I_{EBO}	$V_{BE}=10\text{V}$		50	nA
BV_{CBO}	$I_C=100\mu\text{A}$	40		V
BV_{CEO}	$I_C=10\text{mA}$	40		V
BV_{EBO}	$I_E=10\mu\text{A}$	12		V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=0.5\text{mA}$		1.20	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=0.5\text{mA}$		1.50	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=0.5\text{mA}$		2.00	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$		1.75	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10K	100K	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	20K	200K	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	14K	140K	
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	130		MHz

SYMBOL

 C_{ob} C_{ib} N_F

TEST CONDITIONS

 $V_{CB}=10V, I_E=0, f=1.0MHz$ $V_{BE}=0.5V, I_C=0, f=1.0MHz$ $V_{CE}=5.0V, I_C=1.0mA, R_S=100k\Omega,$
 $f=1.0kHz \text{ TO } 15.7kHz$

MIN

MAX

UNITS

7.0

pF

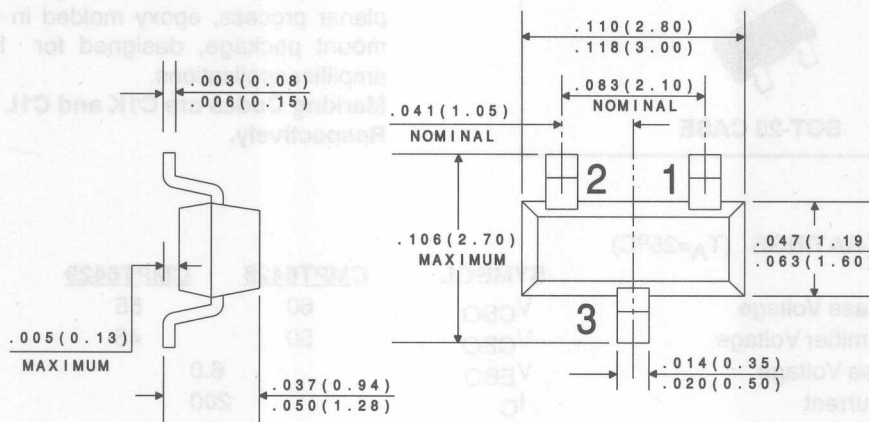
15

pF

10

dB

All dimensions in inches (mm).



LEAD CODE:

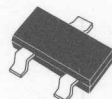
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT6428
CMPT6429

NPN SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT6428, CMPT6429 types are NPN Silicon Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high gain amplifier applications.

Marking Codes are C1K and C1L Respectively.

MAXIMUM RATINGS (T_A=25°C)

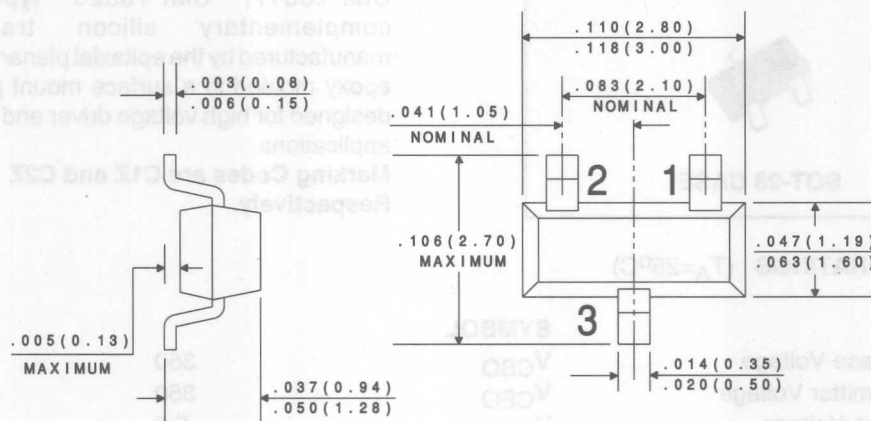
	SYMBOL	CMPT6428	CMPT6429	UNITS
Collector-Base Voltage	V _{CBO}	60	55	V
Collector-Emitter Voltage	V _{CEO}	50	45	V
Emitter-Base Voltage	V _{EBO}	6.0		V
Collector Current	I _C	200		mA
Power Dissipation	P _D	350		mW
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JA}	357		°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT6428		CMPT6429		UNITS
		MIN	MAX	MIN	MAX	
I _{CBO}	V _{CB} =30V		10		10	nA
I _{CEO}	V _{CE} =30V		100		100	nA
I _{EBO}	V _{BE} =5.0V		10		10	nA
BV _{CBO}	I _C =100μA	60		55		V
BV _{CEO}	I _C =1.0mA	50		45		V
V _{CE(SAT)}	I _C =10mA, I _B =0.5mA		0.20		0.20	V
V _{CE(SAT)}	I _C =100mA, I _B =5.0mA		0.60		0.60	V
V _{BE(ON)}	V _{CE} =5.0V, I _C =1.0mA	0.56	0.66	0.56	0.66	V
h _{FE}	V _{CE} =5.0V, I _C =10μA	250		500		
h _{FE}	V _{CE} =5.0V, I _C =100μA	250	650	500	1250	
h _{FE}	V _{CE} =5.0V, I _C =1.0mA	250		500		
h _{FE}	V _{CE} =5.0V, I _C =10mA	250		500		
f _T	V _{CE} =5.0V, I _C =1.0mA, f=100MHz	100	700	100	700	MHz

SYMBOL	TEST CONDITIONS	CMPT6428		CMPT6429		UNITS
		MIN	MAX	MIN	MAX	
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		3.0		3.0	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0		8.0	pF

All dimensions in inches (mm).



LEAD CODE:

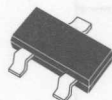
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT6517 NPN
CMPT6520 PNP

COMPLEMENTARY SILICON
HIGH VOLTAGE TRANSISTORS



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT6517, CMPT6520 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage driver and amplifier applications.

**Marking Codes are C1Z and C2Z
Respectively.**

MAXIMUM RATINGS (T_A=25°C)

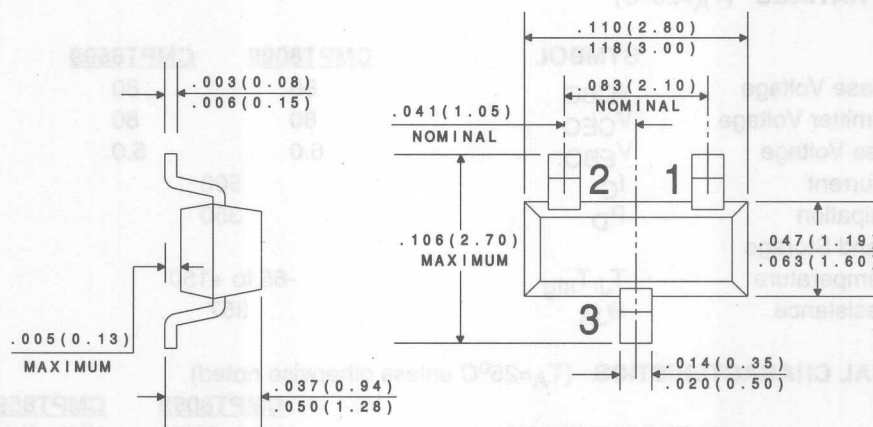
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	350	V
Collector-Emitter Voltage	V _{CEO}	350	V
Emitter-Base Voltage	V _{EB0}	5.0	V
Collector Current	I _C	500	mA
Base Current	I _B	250	mA
Power Dissipation	P _D	350	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CB0}	V _{CB} =250V		50	nA
I _{EB0}	V _{EB} =5.0V (CMPT6517)		50	nA
I _{EB0}	V _{EB} =4.0V (CMPT6520)		50	nA
BV _{CB0}	I _C =100μA	350		V
BV _{CEO}	I _C =1.0mA	350		V
BV _{EB0}	I _E =10μA (CMPT6517)	6.0		V
BV _{EB0}	I _E =10μA (CMPT6520)	5.0		V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA		0.30	V
V _{CE(SAT)}	I _C =20mA, I _B =2.0mA		0.35	V
V _{CE(SAT)}	I _C =30mA, I _B =3.0mA		0.50	V
V _{CE(SAT)}	I _C =50mA, I _B =5.0mA		1.0	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA		0.75	V
V _{BE(SAT)}	I _C =20mA, I _B =2.0mA		0.85	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$V_{BE(SAT)}$	$I_C=30mA, I_B=3.0mA$		0.90	V
$V_{BE(ON)}$	$V_{CE}=10V, I_C=100mA$		2.0	V
h_{FE}	$V_{CE}=10V, I_C=1.0mA$	20		
h_{FE}	$V_{CE}=10V, I_C=10mA$	30		
h_{FE}	$V_{CE}=10V, I_C=30mA$	30	200	
h_{FE}	$V_{CE}=10V, I_C=50mA$	20	200	
h_{FE}	$V_{CE}=10V, I_C=100mA$	15		
f_T	$V_{CE}=20V, I_C=10mA, f=20MHz$	40	200	MHz
C_{cb}	$V_{CB}=20V, I_C=0, f=1.0MHz$		6.0	pF
C_{eb}	$V_{EB}=0.5V, I_E=0, f=1.0MHz$ (CMPT6517)		80	pF
C_{eb}	$V_{EB}=0.5V, I_E=0, f=1.0MHz$ (CMPT6520)		100	pF

All dimensions in inches (mm).



LEAD CODE:

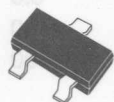
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPT8099 NPN
CMPT8599 PNP

COMPLEMENTARY
SILICON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT8099, CMPT8599 types are Complementary Silicon Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for general purpose audio amplifier applications.

**Marking Codes are CKB and C2W
Respectively.**

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL	CMPT8099	CMPT8599	UNITS
Collector-Base Voltage	V_{CBO}	80	80	V
Collector-Emitter Voltage	V_{CEO}	80	80	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	500		mA
Power Dissipation	P_D	350		mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	357		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPT8099		CMPT8599		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=80\text{V}$		0.1		0.1	μA
I_{EBO}	$V_{BE}=6.0\text{V}$		0.1		-	μA
I_{EBO}	$V_{BE}=4.0\text{V}$		-		0.1	μA
BV_{CBO}	$I_C=100\mu\text{A}$	80		80		V
BV_{CEO}	$I_C=10\text{mA}$	80		80		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=5.0\text{mA}$		0.4		0.4	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		0.3		0.3	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	0.6	0.8	0.6	0.8	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	100	300	100	300	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	100		100		

SYMBOL

h_{FE}
 f_T
 C_{ob}
 C_{ib}

TEST CONDITIONS

$V_{CE}=5.0V$, $I_C=100mA$
 $V_{CE}=5.0V$, $I_C=10mA$, $f=100MHz$
 $V_{CB}=10V$, $I_E=0$, $f=1.0MHz$
 $V_{BE}=0.5V$, $I_C=0$, $f=1.0MHz$

CMPT8099

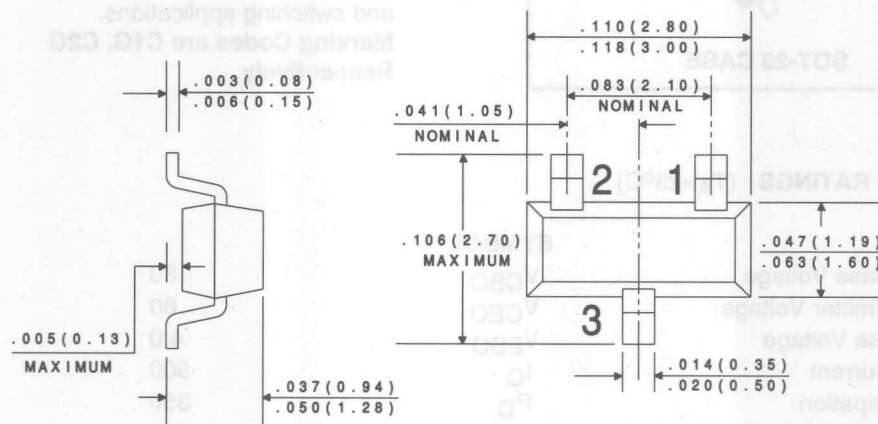
MIN	MAX
75	
150	
	6.0
	25

CMPT8599

MIN	MAX
75	
150	
	4.5
	30

UNITS
MHz
pF
pF

All dimensions in inches (mm).



LEAD CODE:

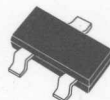
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPTA06 NPN
CMPTA56 PNP

COMPLEMENTARY
SILICON TRANSISTORS



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA06, CMPTA56 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

Marking Codes are C1G, C2G
Respectively.

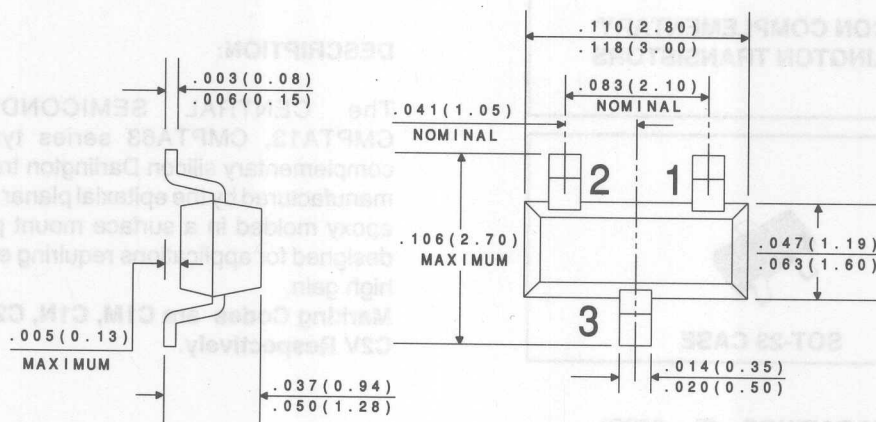
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	80	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=80\text{V}$		100	nA
I_{CEO}	$V_{CE}=60\text{V}$		100	nA
BV_{CEO}	$I_C=1.0\text{mA}$	80		V
BV_{EBO}	$I_E=100\mu\text{A}$	4.0		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		0.25	V
$V_{BE(ON)}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$		1.20	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	100		
f_T	$V_{CE}=2.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ (CMPTA06)	100		MHz
f_T	$V_{CE}=1.0\text{V}, I_C=100\text{mA}, f=100\text{MHz}$ (CMPTA56)	50		MHz

All dimensions in inches (mm).



LEAD CODE:

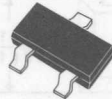
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPTA13 CMPTA14 NPN
CMPTA63 CMPTA64 PNP

SILICON COMPLEMENTARY
DARLINGTON TRANSISTORS



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA13, CMPTA63 series types are complementary silicon Darlington transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

Marking Codes are C1M, C1N, C2U and C2V Respectively.

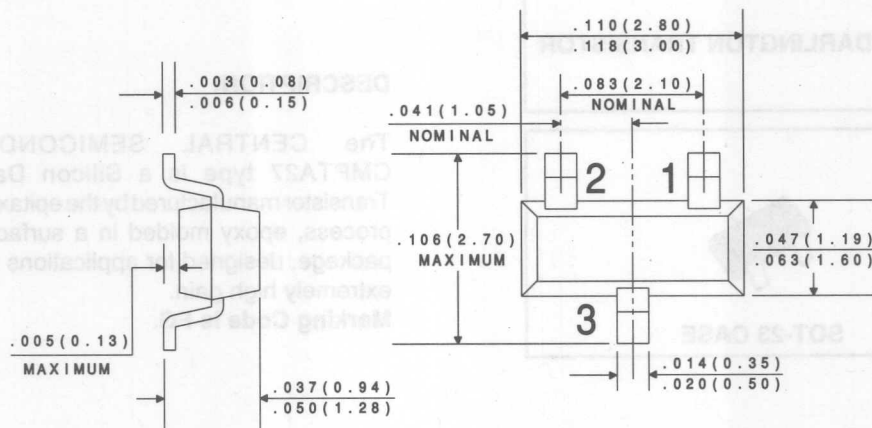
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CES}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=30\text{V}$		100	nA
I_{EBO}	$V_{BE}=10\text{V}$		100	nA
BV_{CES}	$I_C=100\mu\text{A}$	30		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$ (CMPTA13, CMPTA63)	5,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$ (CMPTA14, CMPTA64)	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$ (CMPTA13, CMPTA63)	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$ (CMPTA14, CMPTA64)	20,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

All Dimensions in inches (mm).



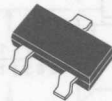
LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA SHEET

CMPTA27

SILICON DARLINGTON TRANSISTOR



SOT-23 CASE

Central Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA27 type is a Silicon Darlington Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

Marking Code is FG.

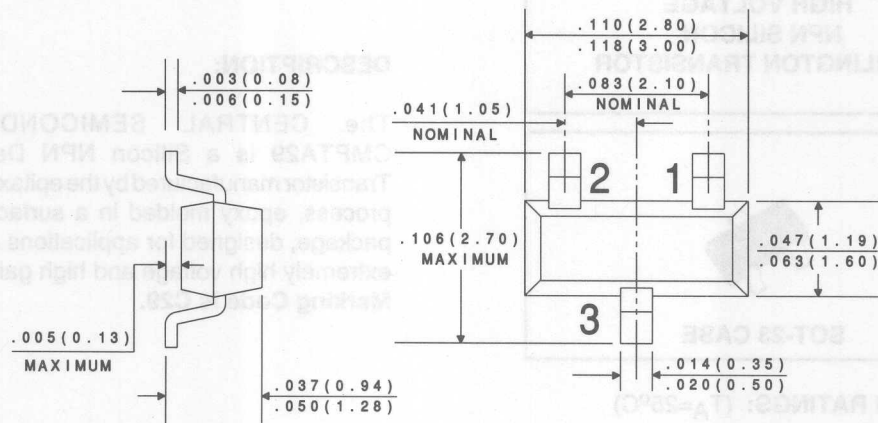
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CES}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CES}	$V_{CE}=50\text{V}$		500	nA
I_{CBO}	$V_{CB}=50\text{V}$		100	nA
I_{EBO}	$V_{BE}=10\text{V}$		100	nA
BV_{CES}	$I_C=100\mu\text{A}$	60		V
BV_{CBO}	$I_C=100\mu\text{A}$	60		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	10,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPTA29
HIGH VOLTAGE
NPN SILICON
DARLINGTON TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA29 is a Silicon NPN Darlington Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high voltage and high gain.

Marking Code is C29.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

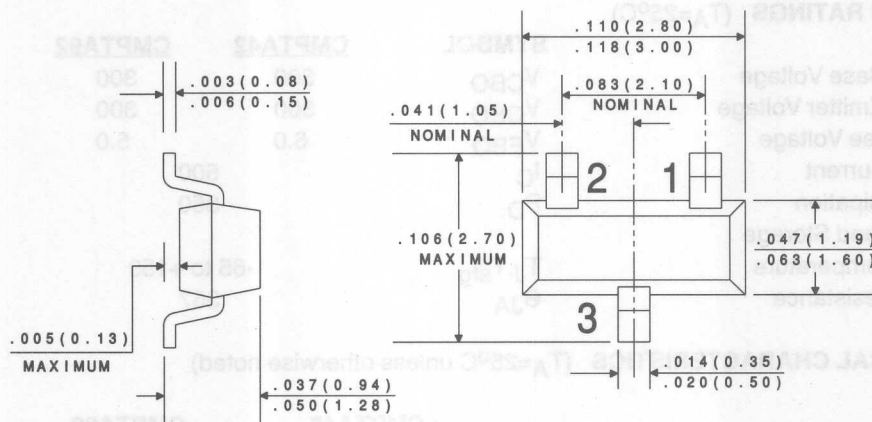
	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CES}	100	V
Emitter-Base Voltage	V_{EBO}	12	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CES}	$V_{CE}=80\text{V}$		500	nA
I_{CBO}	$V_{CB}=80\text{V}$		100	nA
I_{EBO}	$V_{BE}=10\text{V}$		100	nA
BV_{CES}	$I_C=100\mu\text{A}$	100		V
BV_{CBO}	$I_C=100\mu\text{A}$	100		V
BV_{EBO}	$I_E=10\mu\text{A}$	12		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=10\mu\text{A}$		1.2	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=100\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=5.0V, I_C=10mA$	10,000		
h_{FE}	$V_{CE}=5.0V, I_C=100mA$	10,000		
f_T	$V_{CE}=5.0V, I_C=10mA, f=100MHz$	125		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF

All dimensions in inches (mm).



LEAD CODE:

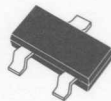
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R1

CMPTA42 NPN
CMPTA92 PNP

SILICON COMPLEMENTARY
HIGH VOLTAGE TRANSISTOR



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA42, CMPTA92 types are complementary surface mount epoxy molded silicon planar epitaxial transistors designed for high voltage applications.

**Marking Codes are C1D, C2D
Respectively.**

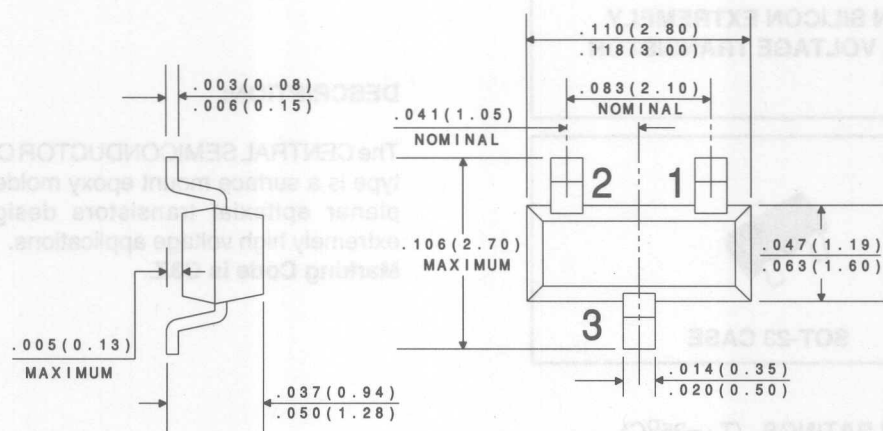
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL	CMPTA42	CMPTA92	UNITS
Collector-Base Voltage	V _{CB0}	300	300	V
Collector-Emitter Voltage	V _{CEO}	300	300	V
Emitter-Base Voltage	V _{EBO}	6.0	5.0	V
Collector Current	I _C		500	mA
Power Dissipation	P _D		350	mW
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JA}	357		°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPTA42		CMPTA92		UNITS
		MIN	MAX	MIN	MAX	
I _{CB0}	V _{CB} =200V		100		250	nA
I _{EBO}	V _{BE} =6.0V		100		-	nA
I _{EBO}	V _{BE} =3.0V		-		100	nA
BV _{CB0}	I _C =100μA	300		300		V
BV _{CEO}	I _C =1.0mA	300		300		V
BV _{EBO}	I _E =100μA	6.0		5.0		V
V _{CE} (SAT)	I _C =20mA, I _B =2.0mA		0.5		0.5	V
V _{BE} (SAT)	I _C =20mA, I _B =2.0mA		0.9		0.9	V
h _{FE}	V _{CE} =10V, I _C =1.0mA	25		25		
h _{FE}	V _{CE} =10V, I _C =10mA	40		40		
h _{FE}	V _{CE} =10V, I _C =30mA	40		25		
f _T	V _{CE} =20V, I _C =10mA, f=100MHz	50		50		MHz
C _{ob}	V _{CB} =20V, I _E =0, f=1.0MHz		3.0		6.0	pF

All dimensions in inches (mm).



LEAD CODE:

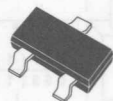
- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPTA44

**NPN SILICON EXTREMELY
HIGH VOLTAGE TRANSISTOR**



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTA44 type is a surface mount epoxy molded silicon planar epitaxial transistors designed for extremely high voltage applications.

Marking Code is C3Z.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{CB0} 450
 V_{CEO} 400
 V_{EBO} 6.0
 I_C 300
 P_D 350

UNITS

V
V
V
mA
mW

T_J, T_{stg} -65 to +150
 θ_{JA} 357

$^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=400\text{V}$		100	nA
I_{CES}	$V_{CE}=400\text{V}$		500	nA
I_{EBO}	$V_{BE}=4.0\text{V}$		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	450		V
BV_{CES}	$I_C=100\mu\text{A}$	450		V
BV_{CEO}	$I_C=1.0\text{mA}$	400		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=1.0\text{mA}, I_B=0.1\text{mA}$		0.40	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.50	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.75	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.75	V
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	40		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	50	200	

SYMBOL

h_{FE}

h_{FE}

f_T

C_{ob}

C_{ib}

TEST CONDITIONS

$V_{CE}=10V, I_C=50mA$

$V_{CE}=10V, I_C=100mA$

$V_{CE}=10V, I_C=10mA, f=10MHz$

$V_{CB}=20V, I_E=0, f=1.0MHz$

$V_{EB}=0.5V, I_C=0, f=1.0MHz$

MIN

MAX

UNITS

45

20

20

MHz

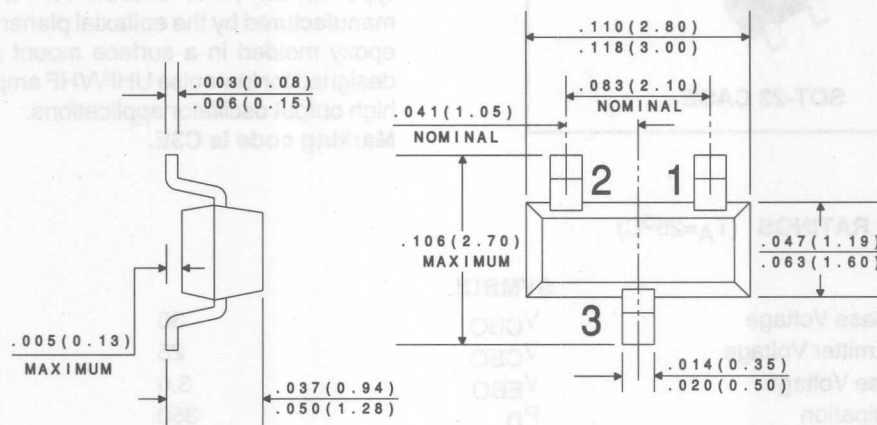
7.0

pF

130

pF

All dimensions in inches (mm).

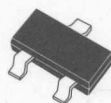


LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R2

CMPTH10**NPN SILICON RF TRANSISTOR****SOT-23 CASE**
CentralTM
Semiconductor Corp.
DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPTH10 type is an NPN silicon RF transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for low noise UHF/VHF amplifier and high output oscillator applications.

Marking code is C3E.

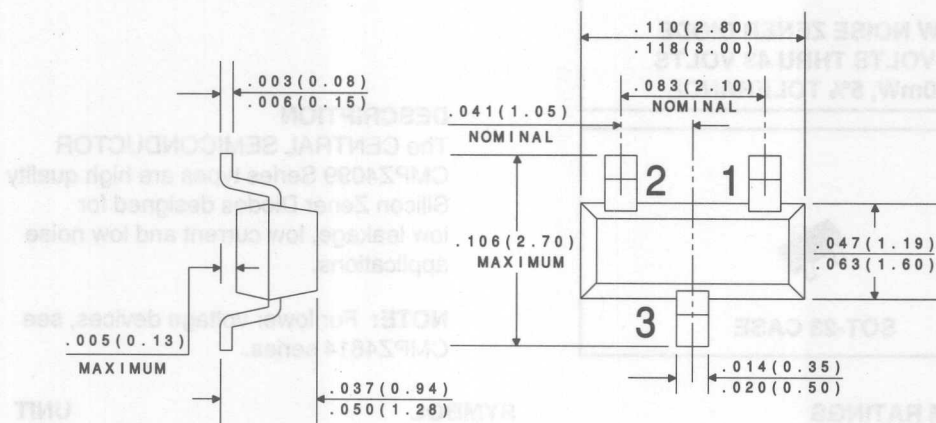
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Power Dissipation	P_D	350	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	357	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=25\text{V}$		100	nA
I_{EBO}	$V_{EB}=2.0\text{V}$		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	30		V
BV_{CEO}	$I_C=1.0\text{mA}$	25		V
BV_{EBO}	$I_E=10\mu\text{A}$	3.0		V
$V_{CE(SAT)}$	$I_C=4.0\text{mA}, I_B=0.4\text{mA}$		0.50	V
$V_{BE(ON)}$	$V_{CE}=10\text{V}, I_B=4.0\text{mA}$		0.95	V
h_{FE}	$V_{CE}=10\text{V}, I_C=4.0\text{mA}$	60		
f_T	$V_{CE}=10\text{V}, I_C=4.0\text{mA}, f=100\text{MHz}$	650		MHz
C_{cb}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		0.70	pF
C_{rb}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		0.65	pF
$rb'C_c$	$V_{CB}=10\text{V}, I_C=4.0\text{mA}, f=31.8\text{MHz}$		9.0	ps

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

TYPE	MAXIMUM POWER DISSIPATION (P_D)	MAXIMUM CURRENT (I_C)	MAXIMUM VOLTAGE (V_{CE})	MAXIMUM POWER DISSIPATION (P_D)	MAXIMUM CURRENT (I_C)	MAXIMUM VOLTAGE (V_{CE})
CMPT100	100	10	10	100	10	10
CMPT101	100	10	10	100	10	10
CMPT102	100	10	10	100	10	10
CMPT103	100	10	10	100	10	10
CMPT104	100	10	10	100	10	10
CMPT105	100	10	10	100	10	10
CMPT106	100	10	10	100	10	10
CMPT107	100	10	10	100	10	10
CMPT108	100	10	10	100	10	10
CMPT109	100	10	10	100	10	10
CMPT110	100	10	10	100	10	10
CMPT111	100	10	10	100	10	10
CMPT112	100	10	10	100	10	10
CMPT113	100	10	10	100	10	10
CMPT114	100	10	10	100	10	10
CMPT115	100	10	10	100	10	10
CMPT116	100	10	10	100	10	10
CMPT117	100	10	10	100	10	10
CMPT118	100	10	10	100	10	10
CMPT119	100	10	10	100	10	10
CMPT120	100	10	10	100	10	10

DATA
SHEET

R2



**CMPZ4099
THRU
CMPZ4124**

**LOW NOISE ZENER DIODE
6.8 VOLTS THRU 43 VOLTS
350mW, 5% TOLERANCE**



SOT-23 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMPZ4099 Series types are high quality Silicon Zener Diodes designed for low leakage, low current and low noise applications.

NOTE: For lower voltage devices, see CMPZ4614 series.

MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
Operating and Storage Temperature

SYMBOL

P_D
 T_J, T_{stg}

350
-65 to +150

UNIT

mW
 $^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$) $V_F=1.0\text{V MAX}$ @ $I_F=200\text{mA}$ FOR ALL TYPES

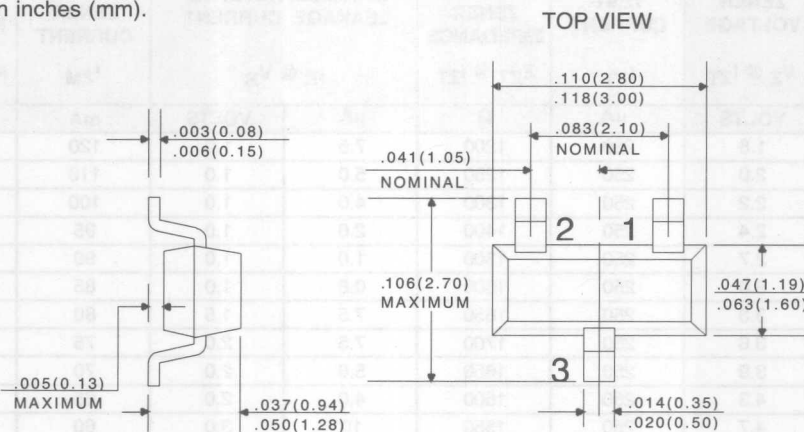
TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDENCE	MAX REVERSE LEAKAGE CURRENT		MAXIMUM ZENER CURRENT	MAXIMUM NOISE DENSITY
	$V_Z @ I_{ZT}$			I_{ZT}	$Z_{ZT} @ I_{ZT}$	$I_R @ V_R$		I_{ZM}	$N_D @ I_{ZT}$
	MIN VOLTS	NOM VOLTS	MAX VOLTS	μA	Ω	μA	VOLTS	mA	$\mu\text{V}/\sqrt{\text{Hz}}$
CMPZ4099*	6.460	6.8	7.140	250	200	10	5.2	35.0	40
CMPZ4100*	7.125	7.5	7.865	250	200	10	5.7	31.8	40
CMPZ4101*	7.790	8.2	8.610	250	200	1.0	6.3	29.0	40
CMPZ4102*	8.265	8.7	9.135	250	200	1.0	6.7	27.4	40
CMPZ4103*	8.645	9.1	9.555	250	200	1.0	7.0	26.2	40
CMPZ4104*	9.500	10	10.50	250	200	1.0	7.6	24.8	40
CMPZ4105*	10.45	11	11.55	250	200	0.05	8.5	21.6	40
CMPZ4106*	11.40	12	12.60	250	200	0.05	9.2	20.4	40
CMPZ4107*	12.35	13	13.65	250	200	0.05	9.9	19.0	40
CMPZ4108*	13.30	14	14.70	250	200	0.05	10.7	17.5	40
CMPZ4109*	14.25	15	15.75	250	100	0.05	11.4	16.3	40
CMPZ4110*	15.20	16	16.80	250	100	0.05	12.2	15.4	40
CMPZ4111*	16.15	17	17.85	250	100	0.05	13.0	14.5	40
CMPZ4112*	17.10	18	18.90	250	100	0.05	13.7	13.2	40
CMPZ4113*	18.05	19	19.95	250	150	0.05	14.5	12.5	40
CMPZ4114*	19.0	20	21.00	250	150	0.01	15.2	11.9	40
CMPZ4115*	20.90	22	23.10	250	150	0.01	16.8	10.8	40
CMPZ4116*	22.80	24	25.20	250	150	0.01	18.3	9.9	40

* Available on special order only, please consult factory.

TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDENCE	MAX REVERSE LEAKAGE CURRENT	MAXIMUM ZENER CURRENT	MAXIMUM NOISE DENSITY
	$V_Z @ I_{ZT}$			I_{ZT}	$Z_{ZT} @ I_{ZT}$	$I_R @ V_R$	I_{ZM}	$N_D @ I_{ZT}$
	MIN	NOM	MAX					
	VOLTS	VOLTS	VOLTS	μA	Ω	μA	VOLTS	$\mu V/\sqrt{Hz}$
CMPZ4117*	23.75	25	26.25	250	150	0.01	19.0	40
CMPZ4118*	25.65	27	28.35	250	150	0.01	20.5	40
CMPZ4119*	26.60	28	29.40	250	200	0.01	21.3	40
CMPZ4120*	28.50	30	31.50	250	200	0.01	22.8	40
CMPZ4121*	31.35	33	34.65	250	200	0.01	25.1	40
CMPZ4122*	34.20	36	37.80	250	200	0.01	27.4	40
CMPZ4123*	37.05	39	40.95	250	200	0.01	29.7	40
CMPZ4124*	40.85	43	45.15	250	250	0.01	32.7	40

* Available on special order only, please consult factory.

All dimensions in inches (mm).



LEAD CODE:

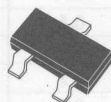
- 1) ANODE
- 2) NO CONNECTION
- 3) CATHODE

DATA SHEET

R2

**CMPZ4614
THRU
CMPZ4627**

**350mW LOW NOISE ZENER DIODE
5% TOLERANCE**



SOT-23 CASE

**CentralTM
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPZ4614 Series Silicon Zener Diode is high quality voltage regulator designed for low leakage, low current and low noise applications.

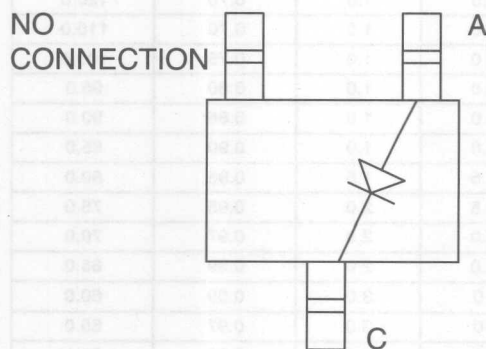
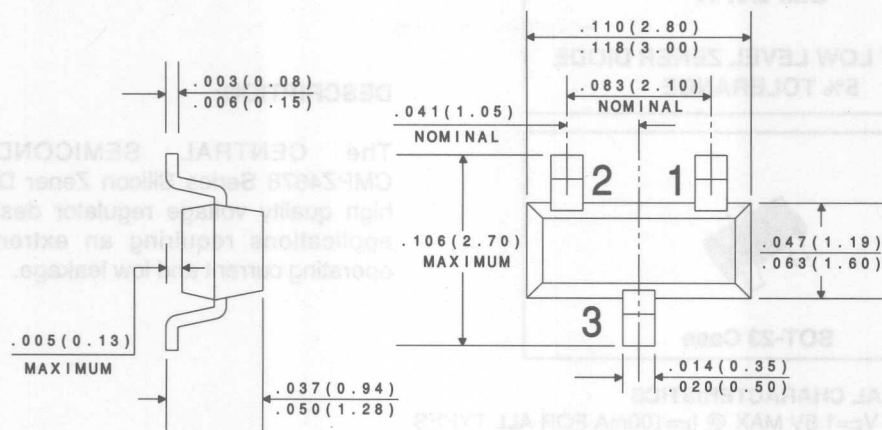
ELECTRICAL CHARACTERISTICS

($T_A=25^\circ\text{C}$) $V_F=1.0$ MAX @ $I_F=200\text{mA}$ FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE	TEST CURRENT	MAXIMUM ZENER IMPEDANCE	MAXIMUM REVERSE LEAKAGE CURRENT		MAXIMUM ZENER CURRENT	MAXIMUM NOISE DENSITY
	$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$I_R @ V_R$		I_{ZM}	$N_D @ I_{ZT}=250\mu\text{A}$
	VOLTS	μA	Ω	μA	VOLTS	mA	$\mu\text{V}/\sqrt{\text{Hz}}$
CMPZ4614*	1.8	250	1200	7.5	1.0	120	1.0
CMPZ4615*	2.0	250	1250	5.0	1.0	110	1.0
CMPZ4616*	2.2	250	1300	4.0	1.0	100	1.0
CMPZ4617*	2.4	250	1400	2.0	1.0	95	1.0
CMPZ4618*	2.7	250	1500	1.0	1.0	90	1.0
CMPZ4619*	3.0	250	1600	0.8	1.0	85	1.0
CMPZ4620*	3.3	250	1650	7.5	1.5	80	1.0
CMPZ4621*	3.6	250	1700	7.5	2.0	75	1.0
CMPZ4622*	3.9	250	1650	5.0	2.0	70	1.0
CMPZ4623*	4.3	250	1600	4.0	2.0	65	1.0
CMPZ4624*	4.7	250	1550	10	3.0	60	1.0
CMPZ4625*	5.1	250	1500	10	3.0	55	2.0
CMPZ4626*	5.6	250	1400	10	4.0	50	4.0
CMPZ4627*	6.2	250	1200	10	5.0	45	5.0

* Available on special order only, please consult factory.

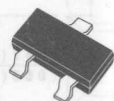
All dimensions in inches (mm).



DATA
SHEET

**CMPZ4678
THRU
CMPZ4717**

**350mW LOW LEVEL ZENER DIODE
5% TOLERANCE**



SOT-23 Case

**CentralTM
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPZ4678 Series Silicon Zener Diode is a high quality voltage regulator designed for applications requiring an extremely low operating current and low leakage.

ELECTRICAL CHARACTERISTICS

($T_A=25^{\circ}\text{C}$) $V_F=1.5\text{V MAX}$ @ $I_F=100\text{mA}$ FOR ALL TYPES.

Type No.	Nominal Zener Voltage V _Z @ I _{ZT}	Test Current I _{ZT} μA	MAXIMUM REVERSE LEAKAGE CURRENT I _R @ V _R		Maximum Voltage Change** ΔV _Z	Maximum Zener Current
	Volts				Volts	mA
			μA	Volts		
CMPZ4678*	1.8	50	7.5	1.0	0.70	120.0
CMPZ4679*	2.0	50	5.0	1.0	0.70	110.0
CMPZ4680*	2.2	50	4.0	1.0	0.75	100.0
CMPZ4681*	2.4	50	2.0	1.0	0.80	95.0
CMPZ4682*	2.7	50	1.0	1.0	0.85	90.0
CMPZ4683*	3.0	50	0.8	1.0	0.90	85.0
CMPZ4684*	3.3	50	7.5	1.5	0.95	80.0
CMPZ4685*	3.6	50	7.5	2.0	0.95	75.0
CMPZ4686*	3.9	50	5.0	2.0	0.97	70.0
CMPZ4687*	4.3	50	4.0	2.0	0.99	65.0
CMPZ4688*	4.7	50	10	3.0	0.99	60.0
CMPZ4689*	5.1	50	10	3.0	0.97	55.0
CMPZ4690*	5.6	50	10	4.0	0.96	50.0
CMPZ4691*	6.2	50	10	5.0	0.95	45.0
CMPZ4692*	6.8	50	10	5.1	0.90	35.0
CMPZ4693*	7.5	50	10	5.7	0.75	31.8
CMPZ4694*	8.2	50	1.0	6.2	0.50	29.0
CMPZ4695*	8.7	50	1.0	6.6	0.10	27.4
CMPZ4696*	9.1	50	1.0	6.9	0.08	26.2
CMPZ4697*	10	50	1.0	7.6	0.10	24.8
CMPZ4698*	11	50	0.05	8.4	0.11	21.6
CMPZ4699*	12	50	0.05	9.1	0.12	20.4

* Available on special order only, please consult factory.

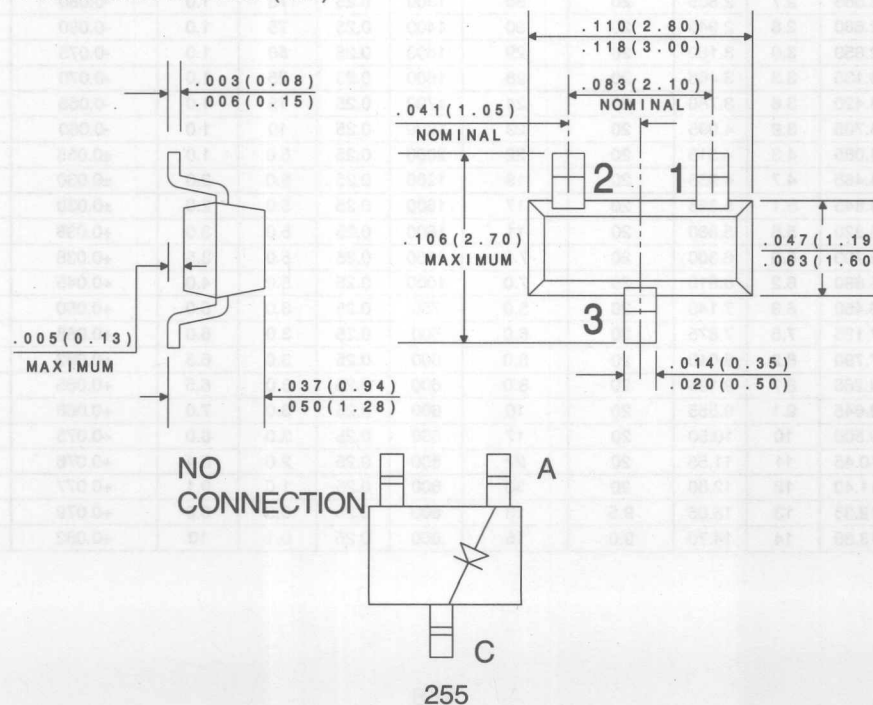
** $\Delta V_Z = V_Z @ 100\mu\text{A}$ MINUS $V_Z @ 10\mu\text{A}$.

Type No.	Nominal Zener Voltage $V_Z @ I_{ZT}$ Volts	Test Current I_{ZT} μA	MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_R$		Maximum Voltage Change** ΔV_Z Volts	Maximum Zener Current I_{ZM} mA
			μA	Volts		
CMPZ4700*	13	50	0.05	9.8	0.13	19.0
CMPZ4701*	14	50	0.05	10.6	0.14	17.5
CMPZ4702*	15	50	0.05	11.4	0.15	16.3
CMPZ4703*	16	50	0.05	12.1	0.16	15.4
CMPZ4704*	17	50	0.05	12.9	0.17	14.5
CMPZ4705*	18	50	0.05	13.6	0.18	13.2
CMPZ4706*	19	50	0.05	14.4	0.19	12.5
CMPZ4707*	20	50	0.01	15.2	0.20	11.9
CMPZ4708*	22	50	0.01	16.7	0.22	10.8
CMPZ4709*	24	50	0.01	18.2	0.24	9.9
CMPZ4710*	25	50	0.01	19.0	0.25	9.5
CMPZ4711*	27	50	0.01	20.4	0.27	8.8
CMPZ4712*	28	50	0.01	21.2	0.28	8.5
CMPZ4713*	30	50	0.01	22.8	0.30	7.9
CMPZ4714*	33	50	0.01	25.0	0.33	7.2
CMPZ4715*	36	50	0.01	27.3	0.36	6.6
CMPZ4716*	39	50	0.01	29.6	0.39	6.1
CMPZ4717*	43	50	0.01	32.6	0.43	5.5

* Available on special order only, please consult factory.

** $\Delta V_Z = V_Z @ 100 \mu A$ MINUS $V_Z @ 10 \mu A$.

All dimensions in inches (mm).

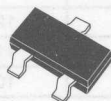


DATA SHEET

R2

**CMPZ5221B
THRU
CMPZ5262B**

**350 mW ZENER DIODE
5% TOLERANCE**



SOT-23 CASE

**CentralTM
Semiconductor Corp.**

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPZ5221B Series Silicon Zener Diode is a high quality voltage regulator for use in industrial, commercial, entertainment and computer applications. Higher voltage devices are available on special order.

ABSOLUTE MAXIMUM RATINGS
Power Dissipation (@ $T_A=25^\circ\text{C}$)
Operating and Storage Temperature

SYMBOL
 P_D
 T_J, T_{stg}

350
-65 to + 175

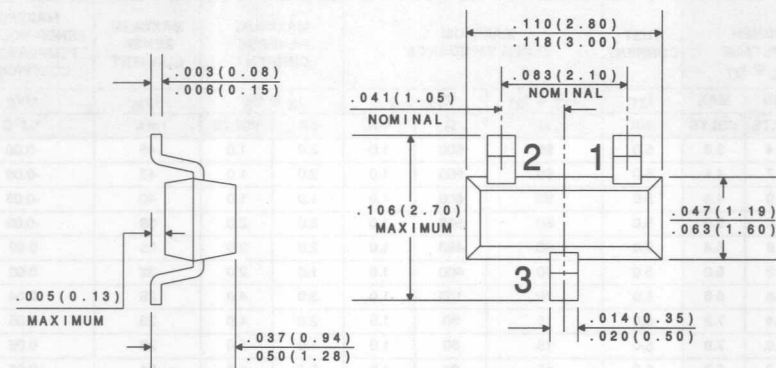
UNITS
mW
 $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$), $V_F=0.9\text{V MAX @ } I_F = 10\text{mA}$ FOR ALL TYPES.

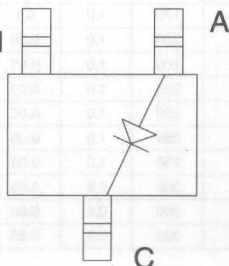
TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAX. TEMP. COEFF.	MARKING CODE
	V _Z @ I _{ZT}				Z _{ZT} @ I _{ZT}		I _R @ V _R		θV _Z		
	MIN VOLTS	NOM VOLTS	MAX VOLTS		I _{ZT} mA	Ω	Z _{ZK} @ I _{ZK} Ω	mA	μA	VOLTS	
CMPZ5221B	2.280	2.4	2.520	20	30	1200	0.25	100	1.0	-0.085	18A
CMPZ5222B	2.375	2.5	2.625	20	30	1250	0.25	100	1.0	-0.085	18B
CMPZ5223B	2.565	2.7	2.835	20	30	1300	0.25	75	1.0	-0.080	18C
CMPZ5224B	2.660	2.8	2.940	20	30	1400	0.25	75	1.0	-0.080	18D
CMPZ5225B	2.850	3.0	3.150	20	29	1600	0.25	50	1.0	-0.075	18E
CMPZ5226B	3.135	3.3	3.465	20	28	1600	0.25	25	1.0	-0.070	C8A
CMPZ5227B	3.420	3.6	3.780	20	24	1700	0.25	15	1.0	-0.065	C8B
CMPZ5228B	3.705	3.9	4.095	20	23	1900	0.25	10	1.0	-0.060	C8C
CMPZ5229B	4.085	4.3	4.515	20	22	2000	0.25	5.0	1.0	±0.055	C8D
CMPZ5230B	4.465	4.7	4.935	20	19	1900	0.25	5.0	2.0	±0.030	C8E
CMPZ5231B	4.845	5.1	5.355	20	17	1600	0.25	5.0	2.0	±0.030	C8F
CMPZ5232B	5.320	5.6	5.880	20	11	1600	0.25	5.0	3.0	+0.038	C8G
CMPZ5233B	5.700	6.0	6.300	20	7.0	1600	0.25	5.0	3.5	+0.038	C8H
CMPZ5234B	5.890	6.2	6.510	20	7.0	1000	0.25	5.0	4.0	+0.045	C8J
CMPZ5235B	6.460	6.8	7.140	20	5.0	750	0.25	3.0	5.0	+0.050	C8K
CMPZ5236B	7.125	7.5	7.875	20	6.0	500	0.25	3.0	6.0	+0.058	C8L
CMPZ5237B	7.790	8.2	8.610	20	8.0	500	0.25	3.0	6.5	+0.062	C8M
CMPZ5238B	8.265	8.7	9.135	20	8.0	600	0.25	3.0	6.5	+0.065	C8N
CMPZ5239B	8.645	9.1	9.555	20	10	600	0.25	3.0	7.0	+0.068	C8P
CMPZ5240B	9.500	10	10.50	20	17	600	0.25	3.0	8.0	+0.075	C8Q
CMPZ5241B	10.45	11	11.55	20	22	600	0.25	2.0	8.4	+0.076	C8R
CMPZ5242B	11.40	12	12.60	20	30	600	0.25	1.0	9.1	+0.077	C8S
CMPZ5243B	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9	+0.079	C8T
CMPZ5244B	13.30	14	14.70	9.0	15	600	0.25	0.1	10	+0.082	C8U

TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAX. TEMP. COEFF.	MARKING CODE
	$V_Z @ I_{ZT}$				$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$			$\theta V_Z$
	MIN VOLTS	NOM VOLTS	MAX VOLTS		I_{ZT} mA	Ω	Ω	mA	μA	VOLTS		%/°C
CMPZ5245B	14.25	15	15.75	8.5	16	600	0.25	0.1	11	+0.082	C8V
CMPZ5246B	15.20	16	16.80	7.8	17	600	0.25	0.1	12	+0.083	C8W
CMPZ5247B	16.15	17	17.85	7.4	19	600	0.25	0.1	13	+0.084	C8X
CMPZ5248B	17.10	18	18.90	7.0	21	600	0.25	0.1	14	+0.085	C8Y
CMPZ5249B	18.05	19	19.95	6.6	23	600	0.25	0.1	14	+0.086	C8Z
CMPZ5250B	19.00	20	21.00	6.2	25	600	0.25	0.1	15	+0.086	81A
CMPZ5251B	20.90	22	23.10	5.6	29	600	0.25	0.1	17	+0.087	81B
CMPZ5252B	22.80	24	25.20	5.2	33	600	0.25	0.1	18	+0.088	81C
CMPZ5253B	23.75	25	26.25	5.0	35	600	0.25	0.1	19	+0.089	81D
CMPZ5254B	25.65	27	28.35	4.6	41	600	0.25	0.1	21	+0.090	81E
CMPZ5255B	26.60	28	29.40	4.5	44	600	0.25	0.1	21	+0.091	81F
CMPZ5256B	28.50	30	31.50	4.2	49	600	0.25	0.1	23	+0.091	81G
CMPZ5257B	31.35	33	34.65	3.8	58	700	0.25	0.1	25	+0.092	81H
CMPZ5258B	34.20	36	37.80	3.4	70	700	0.25	0.1	27	+0.093	81J
CMPZ5259B	37.05	39	40.95	3.2	80	800	0.25	0.1	30	+0.094	81K
CMPZ5260B	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	81L
CMPZ5261B	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	81M
CMPZ5262B	48.45	51	53.55	2.5	125	1100	0.25	0.1	39	+0.096	81N

All dimensions in inches (mm).



NO
CONNECTION



DATA
SHEET

R2

CMPZDA3V6 THRU CMPZDA33V

DUAL ZENER DIODE
3.6 VOLTS THRU 33 VOLTS
350mW, 5% TOLERANCE

**SOT-23 CASE**

Central™
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPZDA3V6 Series Silicon Dual Zener Diode is a high quality voltage regulator, connected in a common anode configuration, for use in industrial, commercial, entertainment and computer applications.

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
 Operating and Storage Temperature
 Thermal Resistance

SYMBOL

P_D 350
 T_J, T_{stg} -65 to +150
 θ_{JA} 357

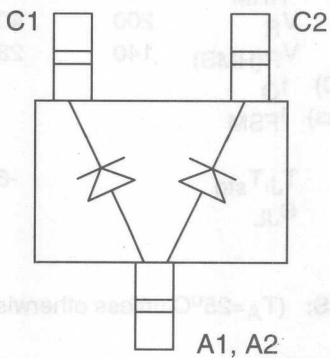
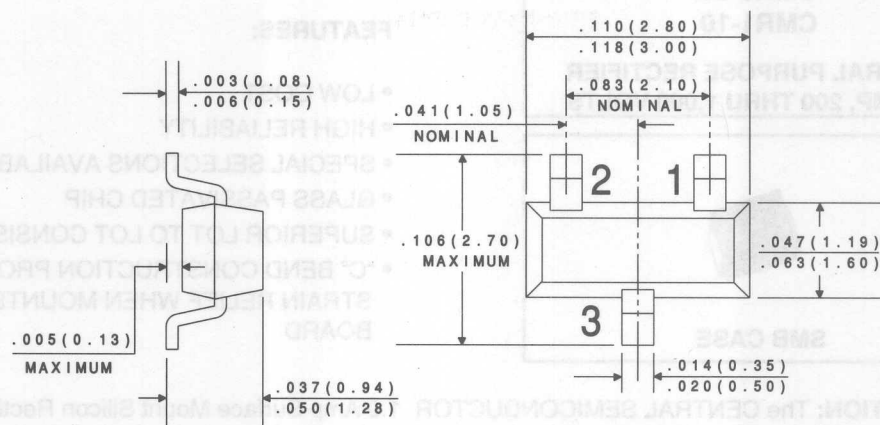
UNIT

mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX @ } I_F=10\text{mA}$ FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE V _Z @ I _{ZT}		TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAXIMUM ZENER CURRENT	MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT	MARKING CODE	
	MIN	MAX		I _{ZT}	Z _T @ I _{ZT}	Z _K @ I _{ZK}	I _R @ V _R	I _{ZM}				θV _Z
	VOLTS	VOLTS		mA	Ω	Ω	mA	μA				VOLTS	mA	%/°C
CMPZDA3V6	3.4	3.8	5.0	95	600	1.0	2.0	1.0	45	-0.06	WW7	
CMPZDA3V9	3.7	4.1	5.0	90	600	1.0	2.0	1.0	43	-0.06	WW8	
CMPZDA4V3	4.0	4.6	5.0	90	600	1.0	1.0	1.0	40	-0.05	WW9	
CMPZDA4V7	4.4	5.0	5.0	80	500	1.0	3.0	2.0	38	-0.03	ZZ1	
CMPZDA5V1	4.8	5.4	5.0	60	480	1.0	2.0	2.0	35	0.02	ZZ2	
CMPZDA5V6	5.2	6.0	5.0	40	400	1.0	1.0	2.0	32	0.03	ZZ3	
CMPZDA6V2	5.8	6.6	5.0	10	150	1.0	3.0	4.0	28	0.04	ZZ4	
CMPZDA6V8	6.4	7.2	5.0	15	80	1.0	2.0	4.0	25	0.05	ZZ5	
CMPZDA7V5	7.0	7.9	5.0	15	80	1.0	1.0	5.0	23	0.05	ZZ6	
CMPZDA8V2	7.7	8.7	5.0	15	80	1.0	0.7	5.0	21	0.06	ZZ7	
CMPZDA9V1	8.5	9.6	5.0	15	100	1.0	0.5	6.0	18	0.06	ZZ8	
CMPZDA10V	9.4	10.6	5.0	20	150	1.0	0.2	7.0	16	0.07	ZZ9	
CMPZDA11V	10.4	11.6	5.0	20	150	1.0	0.1	8.0	15	0.07	YY1	
CMPZDA12V	11.4	12.7	5.0	25	150	1.0	0.1	8.0	13	0.07	YY2	
CMPZDA13V	12.4	14.1	5.0	30	170	1.0	0.1	8.0	12	0.08	YY3	
CMPZDA15V	13.8	15.6	5.0	30	200	1.0	0.05	10.5	11	0.08	YY4	
CMPZDA16V	15.3	17.1	5.0	40	200	1.0	0.05	11.2	10	0.08	YY5	
CMPZDA18V	16.8	19.1	5.0	45	225	1.0	0.05	12.6	9.2	0.08	YY6	
CMPZDA20V	18.8	21.2	5.0	55	225	1.0	0.05	14.0	8.3	0.08	YY7	
CMPZDA22V	20.8	23.3	5.0	55	250	1.0	0.05	15.4	7.6	0.09	YY8	
CMPZDA24V	22.8	25.6	5.0	70	250	1.0	0.05	16.8	7.0	0.09	YY9	
CMPZDA27V	25.1	28.9	2.0	80	300	0.5	0.05	18.9	6.2	0.09	W10	
CMPZDA30V	28.0	32.0	2.0	80	300	0.5	0.05	21.0	5.6	0.09	W11	
CMPZDA33V	31.0	35.0	2.0	80	325	0.5	0.05	23.1	5.0	0.09	W12	

All dimensions in inches (mm).



DATA
SHEET

R2

CMR1-02
CMR1-04
CMR1-06
CMR1-10

GENERAL PURPOSE RECTIFIER
1.0 AMP, 200 THRU 1,000 VOLTS



SMB CASE

CentralTM
Semiconductor Corp.

FEATURES:

- LOW COST
- HIGH RELIABILITY
- SPECIAL SELECTIONS AVAILABLE
- GLASS PASSIVATED CHIP
- SUPERIOR LOT TO LOT CONSISTENCY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION: The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

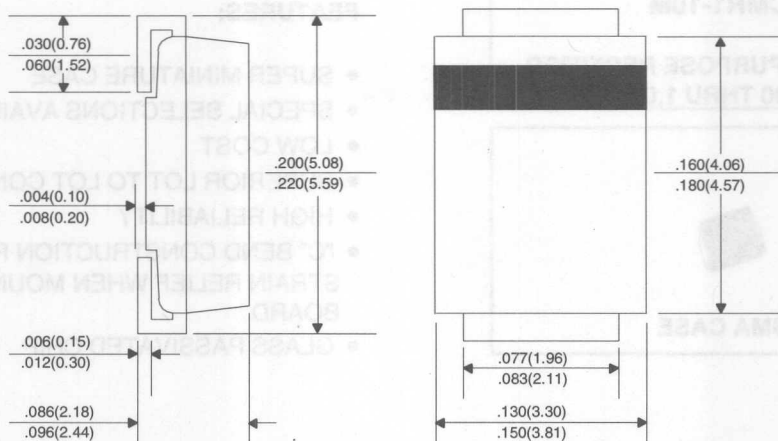
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CMR1-02	CMR1-04	CMR1-06	CMR1-10	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	1000	V
DC Blocking Voltage	V_R	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	420	700	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O		1.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}		30			A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +175			$^{\circ}\text{C}$
Thermal Resistance	Θ_{JL}		20			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_F	$I_F=1.0\text{A}$		1.1	V
I_R	$V_R=\text{Rated } V_{RRM}$		10	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^{\circ}\text{C}$		50	μA

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR1-02	C02
CMR1-04	C04
CMR1-06	C06
CMR1-10	C10

DATA
SHEET

R2

CMR1-02M
CMR1-04M
CMR1-06M
CMR1-10M

GENERAL PURPOSE RECTIFIER
1.0 AMP, 200 THRU 1,000 VOLTS

SUPER
mini



SMA CASE

CentralTM
Semiconductor Corp.

FEATURES:

- SUPER MINIATURE CASE
- SPECIAL SELECTIONS AVAILABLE
- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- GLASS PASSIVATED CHIP

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

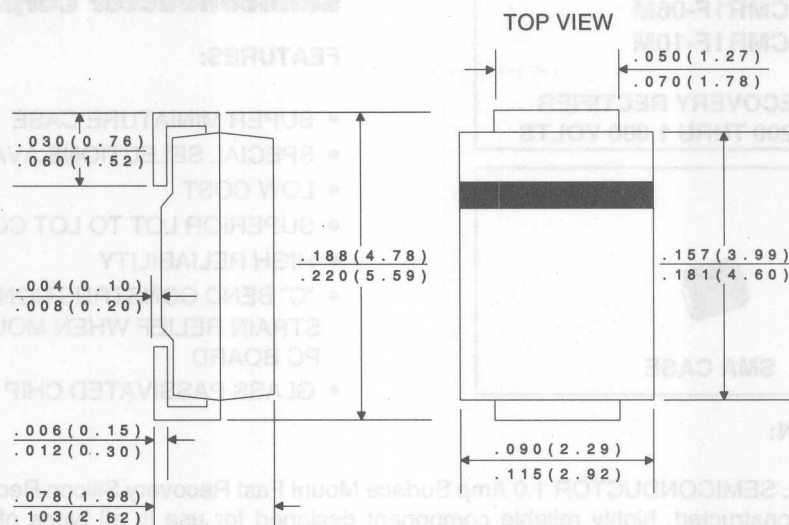
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMR1-02M	CMR1-04M	CMR1-06M	CMR1-10M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	1000	V
DC Blocking Voltage	V_R	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	420	700	V
Average Forward Current ($T_L=100^\circ\text{C}$)	I_O			1.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			30		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^\circ\text{C}$
Thermal Resistance	θ_{JL}		30			$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=1.0\text{A}$			1.1	V
I_R	$V_R=\text{Rated } V_{RRM}$			5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^\circ\text{C}$			50	μA
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		8.0		pF

All dimensions in inches (mm).



DEVICE	MARKING CODE
CMR1-02M	C02M
CMR1-04M	C04M
CMR1-06M	C06M
CMR1-10M	C10M

DATA
SHEET

R1

CMR1F-02M
CMR1F-04M
CMR1F-06M
CMR1F-10M

FAST RECOVERY RECTIFIER
1.0 AMP, 200 THRU 1,000 VOLTS

SUPER[™]
mini



SMA CASE

Central[™]
Semiconductor Corp.

FEATURES:

- SUPER MINIATURE CASE
- SPECIAL SELECTIONS AVAILABLE
- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- GLASS PASSIVATED CHIP

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Fast Recovery Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

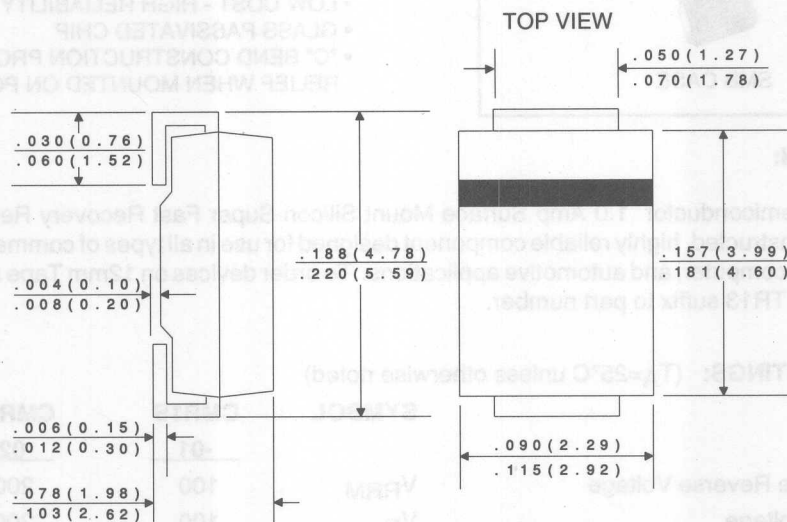
	SYMBOL	CMR1F-02M	CMR1F-04M	CMR1F-06M	CMR1F-10M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	1000	V
DC Blocking Voltage	V_R	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	420	700	V
Average Forward Current ($T_L=120^{\circ}\text{C}$)	I_O			1.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			30		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		30			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^{\circ}\text{C}$			200	μA
V_F	$I_F=1.0\text{A}$			1.3	V
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		15		pF

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
t_{rr}	$I_F=0.5A$, $I_R=1.0A$, Recover to 0.25A (CMR1F-02M, -04M)			150	ns
t_{rr}	$I_F=0.5A$, $I_R=1.0A$, Recover to 0.25A (CMR1F-06M)			250	ns
t_{rr}	$I_F=0.5A$, $I_R=1.0A$, Recover to 0.25A (CMR1F-10M)			500	ns

All dimensions in inches (mm).



DEVICE	MARKING CODE
CMR1F-02M	CF02M
CMR1F-04M	CF04M
CMR1F-06M	CF06M
CMR1F-10M	CF10M

DATA
SHEET



CMR1S-01
CMR1S-02

SUPER FAST RECOVERY RECTIFIER
1.0 AMP, 100 AND 200 VOLTS

**SUPER
FAST**



SMB CASE

CentralTM
Semiconductor Corp.

FEATURES:

- FASTER SWITCHING SPEED (35ns Max)
- LOWER V_F (.95V)
- RUNS COOLER THAN ULTRA FAST RECTIFIER
- LOW COST - HIGH RELIABILITY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The Central Semiconductor 1.0 Amp Surface Mount Silicon Super Fast Recovery Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

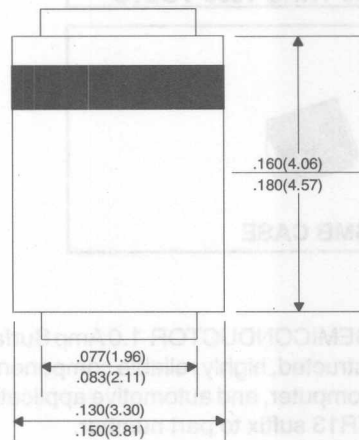
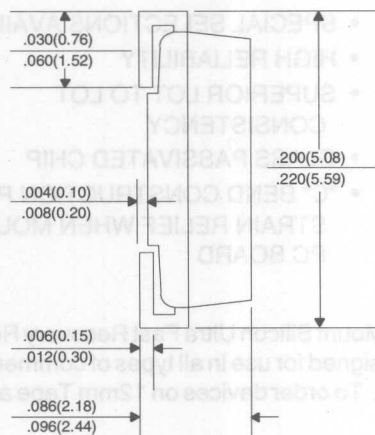
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMR1S -01	CMR1S -02	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	V
DC Blocking Voltage	V_R	100	200	V
RMS Reverse Voltage	$V_R(\text{RMS})$	70	140	V
Average Forward Current	I_O		1.0	A
Peak Forward Surge Current (8.3ms)	I_{FSM}		30	A
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Thermal Resistance	Θ_{JL}	20		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^\circ\text{C}$			500	μA
V_F	$I_F=1.0\text{A}$			0.95	V
t_{rr}	$I_F=0.5\text{A}, I_R=1.0\text{A}, \text{Recover to } 0.25\text{A}$			35	ns
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		10		pF

All dimensions in inches (mm).



DEVICE	MARKING CODE
CMR1S-01	CSF01
CMR1S-02	CSF02

DATA
SHEET

CMR1U-02

CMR1U-04

CMR1U-06

NEW! CMR1U-10

ULTRA FAST RECOVERY RECTIFIER
1.0 AMP, 100 THRU 1000 VOLTS

**SMB CASE**

Central Semiconductor Corp.

FEATURES:

- LOW COST
- SPECIAL SELECTIONS AVAILABLE
- HIGH RELIABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Silicon Ultra Fast Recovery Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

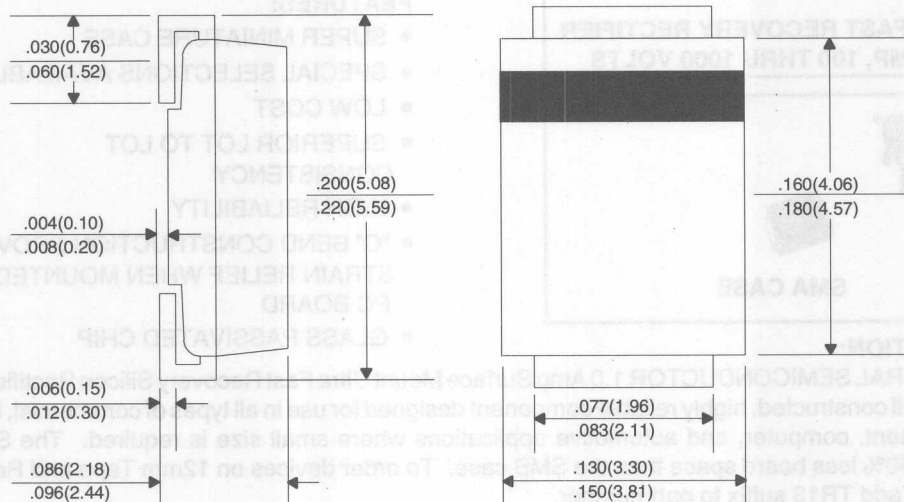
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMR1U-01	CMR1U-02	CMR1U-04	CMR1U-06	CMR1U-10	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	400	600	1000	V
DC Blocking Voltage	V_R	100	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	140	280	420	700	V
Average Forward Current ($T_A=75^\circ\text{C}$)	I_O			1.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}			30			A
Operating and Storage							
Junction Temperature	T_J, T_{stg}			-65 to +175			$^\circ\text{C}$
Thermal Resistance	θ_{JL}			20			$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	V_R =Rated V_{RRM}		5.0	μA
I_R	V_R =Rated V_{RRM} , $T_A=125^\circ\text{C}$		100	μA
V_F	$I_F=1.0\text{A}$, (CMR1U-01, CMR1U-02)		1.00	V
V_F	$I_F=1.0\text{A}$, (CMR1U-04)		1.25	V
V_F	$I_F=1.0\text{A}$, (CMR1U-06)		1.40	V
V_F	$I_F=1.0\text{A}$, (CMR1U-10)		1.70	V
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-01, -02, -04)		50	ns
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-06, -10)		100	ns

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR1U-01	CU01
CMR1U-02	CU02
CMR1U-04	CU04
CMR1U-06	CU06
CMR1U-10	CU10

DATA
SHEET

R1

CMR1U-01M
CMR1U-02M
CMR1U-04M
CMR1U-06M
NEW! CMR1U-10M

ULTRA FAST RECOVERY RECTIFIER
1.0 AMP, 100 THRU 1000 VOLTS

SUPER
mini



SMA CASE

CentralTM
Semiconductor Corp.

FEATURES:

- SUPER MINIATURE CASE
- SPECIAL SELECTIONS AVAILABLE
- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- GLASS PASSIVATED CHIP

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Ultra Fast Recovery Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

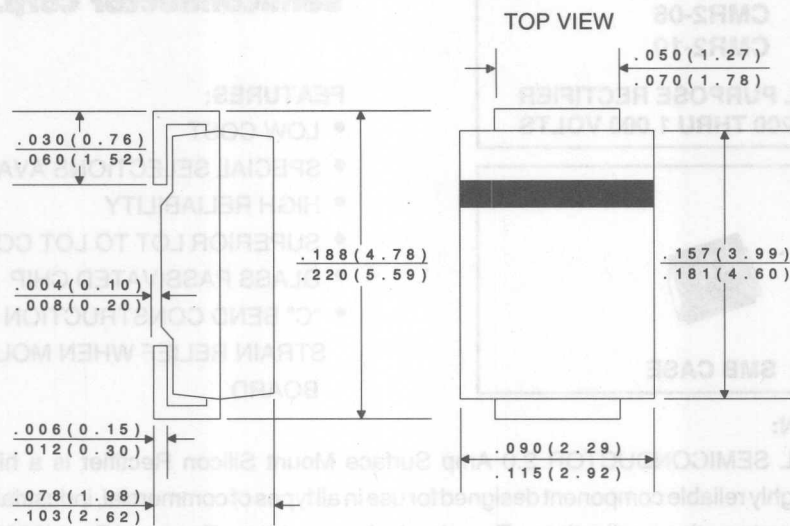
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CMR1U-01M	CMR1U-02M	CMR1U-04M	CMR1U-06M	CMR1U-100M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	400	600	1000	V
DC Blocking Voltage	V_R	100	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	140	280	420	1000	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O			1.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}			30			A
Operating and Storage							
Junction Temperature	T_J, T_{stg}		-65 to +175				$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		30				$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	V_R =Rated V_{RRM}		5.0	μA
V_F	$I_F=1.0\text{A}$, (CMR1U-01M, CMR1U-02M)		1.00	V
V_F	$I_F=1.0\text{A}$, (CMR1U-04M)		1.25	V
V_F	$I_F=1.0\text{A}$, (CMR1U-06M)		1.40	V
V_F	$I_F=1.0\text{A}$, (CMR1U-10M)		1.70	V
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-01M, -02M)		35	ns
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-04M)		50	ns
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-06M)		75	ns
t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, Recover to 0.25A (CMR1U-10M)		100	ns

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR1U-01M	CU01M
CMR1U-02M	CU02M
CMR1U-04M	CU04M
CMR1U-06M	CU06M
CMR1U-10M	CU10M

DATA
SHEET

R1

CMR2-02
CMR2-04
CMR2-06
CMR2-10

GENERAL PURPOSE RECTIFIER
2.0 AMP, 200 THRU 1,000 VOLTS



SMB CASE

Central
Semiconductor Corp.

FEATURES:

- LOW COST
- SPECIAL SELECTIONS AVAILABLE
- HIGH RELIABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2.0 Amp Surface Mount Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

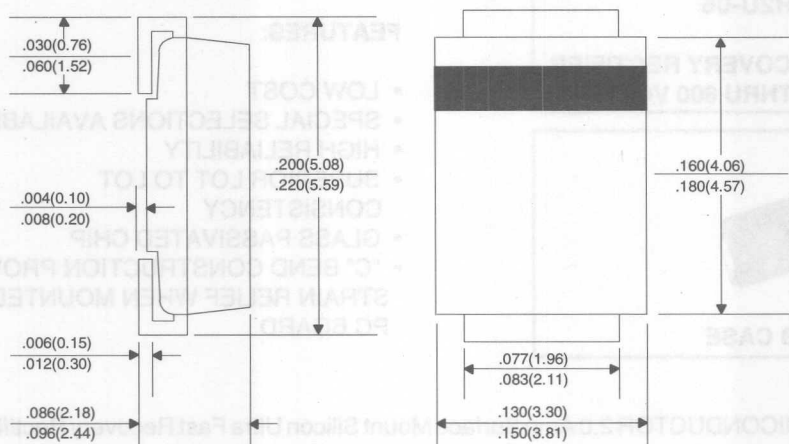
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMR2-02	CMR2-04	CMR2-06	CMR2-10	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	1000	V
DC Blocking Voltage	V_R	200	400	600	1000	V
RMS Reverse Voltage	$V_R(RMS)$	140	280	420	700	V
Average Forward Current ($T_A=50^\circ\text{C}$)	I_O		2.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}		60			A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^\circ\text{C}$
Thermal Resistance	θ_{JL}		20			$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=2.0\text{A}$			1.1	V
I_R	$V_R=\text{Rated } V_{RRM}$			5	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^\circ\text{C}$			125	μA
t_{rr}	$I_F=0.5\text{A}, I_R=1.0\text{A}, \text{Recover to } 0.25\text{A}$			2.5	μs
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		30		pF

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR2-02	C202
CMR2-04	C204
CMR2-06	C206
CMR2-10	C210

DATA
SHEET

R1

CMR2U-01
CMR2U-02
CMR2U-04
CMR2U-06

ULTRA FAST RECOVERY RECTIFIER
2.0 AMP, 100 THRU 600 VOLTS



SMB CASE

CentralTM
Semiconductor Corp.

FEATURES:

- LOW COST
- SPECIAL SELECTIONS AVAILABLE
- HIGH RELIABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2.0 Amp Surface Mount Silicon Ultra Fast Recovery Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

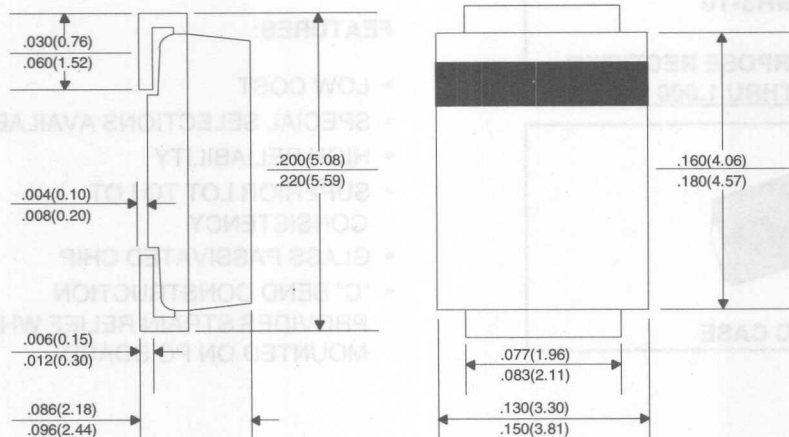
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMR2U-01	CMR2U-02	CMR2U-04	CMR2U-06	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	400	600	V
DC Blocking Voltage	V_R	100	200	400	600	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	140	280	420	V
Average Forward Current ($T_A=50^\circ\text{C}$)	I_O			2.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			50		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}			-65 to +150		$^\circ\text{C}$
Thermal Resistance	Θ_{JL}			20		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			10	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^\circ\text{C}$			50	μA
V_F	$I_F=2.0\text{A}, (\text{CMR2U-01}, \text{CMR2U-02})$			1.00	V
V_F	$I_F=2.0\text{A}, (\text{CMR2U-04})$			1.25	V
V_F	$I_F=2.0\text{A}, (\text{CMR2U-06})$			1.40	V
t_{rr}	$I_F=0.5\text{A}, I_R=1.0\text{A}, \text{Recover to } 0.25\text{A}$			50	ns
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		50		pF

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR2U-01	CU201
CMR2U-02	CU202
CMR2U-04	CU204
CMR2U-06	CU206

DATA
SHEET

CMR3-02
CMR3-04
CMR3-06
CMR3-10

GENERAL PURPOSE RECTIFIER
3.0 AMP, 200 THRU 1,000 VOLTS



SMC CASE

Central
Semiconductor Corp.

FEATURES:

- LOW COST
- SPECIAL SELECTIONS AVAILABLE
- HIGH RELIABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3.0 Amp Surface Mount Silicon Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 16mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

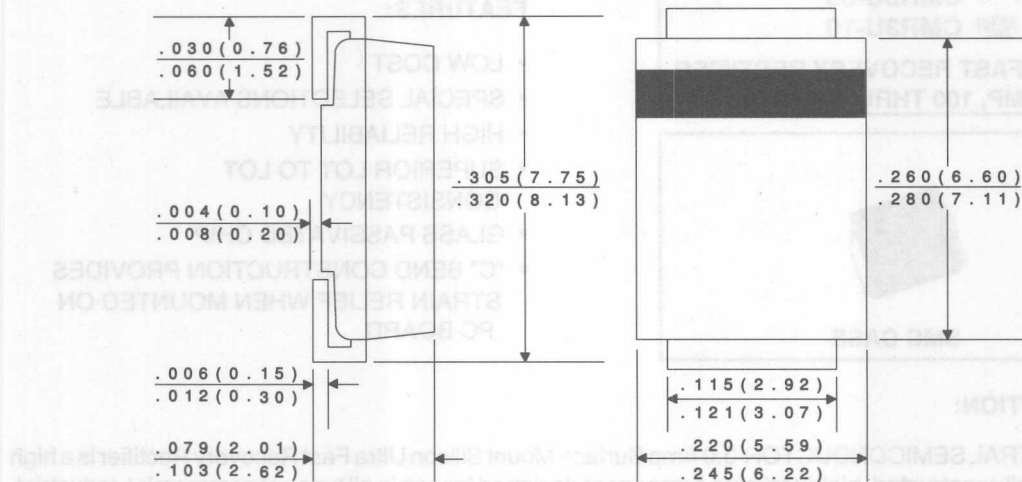
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CMR3-02	CMR3-04	CMR3-06	CMR3-10	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	600	1000	V
DC Blocking Voltage	V_R	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	420	700	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O			3.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			200		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +175			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		10			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_F	$I_F=3.0\text{A}$		1.2	V
I_R	$V_R=\text{Rated } V_{RRM}$		5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^{\circ}\text{C}$		250	μA

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR3-02	C302
CMR3-04	C304
CMR3-06	C306
CMR3-10	C310

DATA
SHEET

R1

CMR3U-01
CMR3U-02
CMR3U-04
CMR3U-06
NEW! CMR3U-10

ULTRA FAST RECOVERY RECTIFIER
3.0 AMP, 100 THRU 1000 VOLTS



SMC CASE

CentralTM Semiconductor Corp.

FEATURES:

- LOW COST
- SPECIAL SELECTIONS AVAILABLE
- HIGH RELIABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- GLASS PASSIVATED CHIP
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3.0 Amp Surface Mount Silicon Ultra Fast Recovery Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 16mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

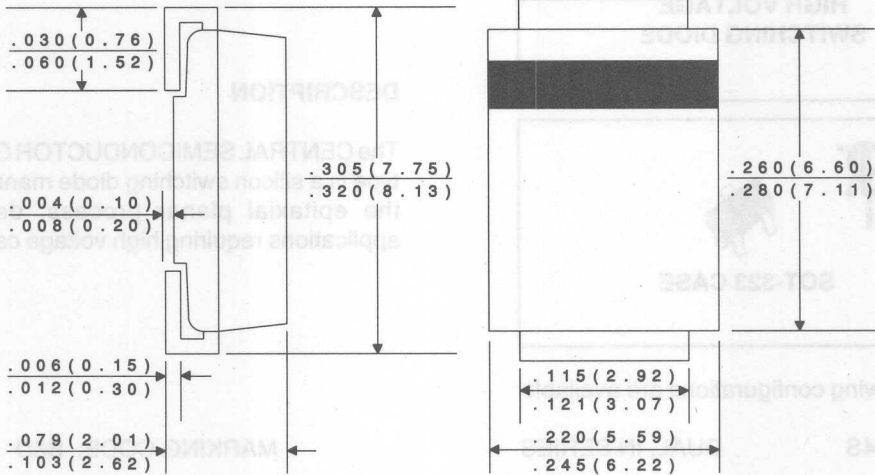
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CMR3U-01	CMR3U-02	CMR3U-04	CMR3U-06	CMR3U-10	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	200	400	600	1000	V
DC Blocking Voltage	V_R	100	200	400	600	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	140	280	420	700	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O			3.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}			150			A
Operating and Storage							
Junction Temperature	T_J, T_{stg}			-65 to +175			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}			10			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$		5.0	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^{\circ}\text{C}$		500	μA
V_F	$I_F=3.0\text{A}, (\text{CMR3U-01, CMR3U-02})$		1.00	V
V_F	$I_F=3.0\text{A}, (\text{CMR3U-04})$		1.25	V
V_F	$I_F=3.0\text{A}, (\text{CMR3U-06})$		1.40	V
V_F	$I_F=3.0\text{A}, (\text{CMR3U-10})$		1.70	V
t_{rr}	$I_F=500\text{mA}, I_R=1.0\text{A}, I_{rr}=250\text{mA} (\text{CMR3U-01, -02, -04})$		50	ns
t_{rr}	$I_F=500\text{mA}, I_R=1.0\text{A}, I_{rr}=250\text{mA} (\text{CMR3U-06, -10})$		100	ns

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMR3U-01	CU301
CMR3U-02	CU302
CMR3U-04	CU304
CMR3U-06	CU306
CMR3U-10	CU310

DATA
SHEET



CMSD2004S

HIGH VOLTAGE
SWITCHING DIODE

SUPERTM
mini



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMSD2004S type is a silicon switching diode manufactured by the epitaxial planar process, designed for applications requiring high voltage capability.

The following configurations are available:

CMSD2004S

DUAL, IN SERIES

MARKING CODE: B6D

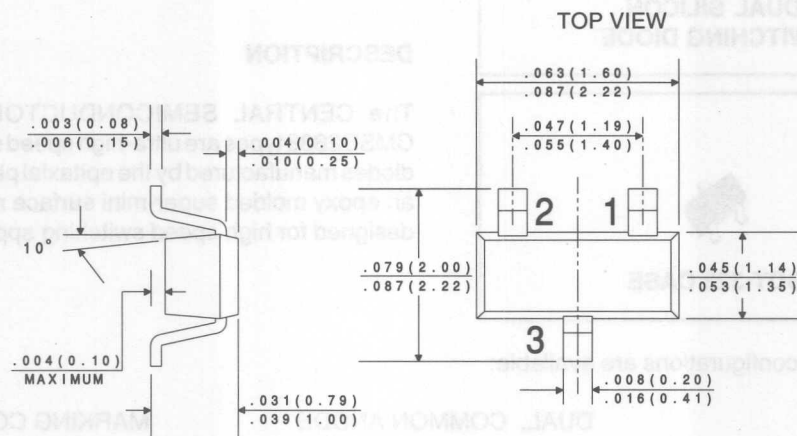
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	240	V
Peak Repetitive Reverse Voltage	V_{RRM}	300	V
Peak Repetitive Reverse Current	I_O	200	mA
Continuous Forward Current	I_F	225	mA
Peak Repetitive Forward Current	I_{FRM}	625	mA
Forward Surge Current, $t_p=1\ \mu\text{s}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\ \text{s}$	I_{FSM}	1000	mA
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	500	$^\circ\text{C/W}$

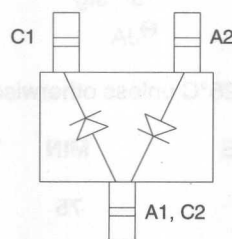
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
BV_R	$I_R=100\ \mu\text{A}$	300		V
I_R	$V_R=200\text{V}$		-	nA
I_R	$V_R=200\text{V}, T_A=150^\circ\text{C}$		-	μA
I_R	$V_R=240\text{V}$		100	nA
I_R	$V_R=240\text{V}, T_A=150^\circ\text{C}$		100	μA
V_F	$I_F=100\text{mA}$		1.0	V
C_T	$V_R=0, f=1\ \text{MHz}$		5.0	pF
t_{rr}	$I_F=I_R=30\text{mA}, \text{RECOV. TO } 3.0\text{mA}, R_L=100\ \Omega$		50	ns

All dimensions in inches (mm).



LEAD CODE



DATA
SHEET

R3

CMSD2836
CMSD2838



SUPER-MINI
DUAL SILICON
SWITCHING DIODE

SUPER
mini



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMSD2836, CMSD2838 types are ultra-high speed silicon switching diodes manufactured by the epitaxial planar process, in an epoxy molded super-mini surface mount package, designed for high speed switching applications.

The following configurations are available:

CMSD2836
CMSD2838

DUAL, COMMON ANODE
DUAL, COMMON CATHODE

MARKING CODE: A2C
MARKING CODE: A6C

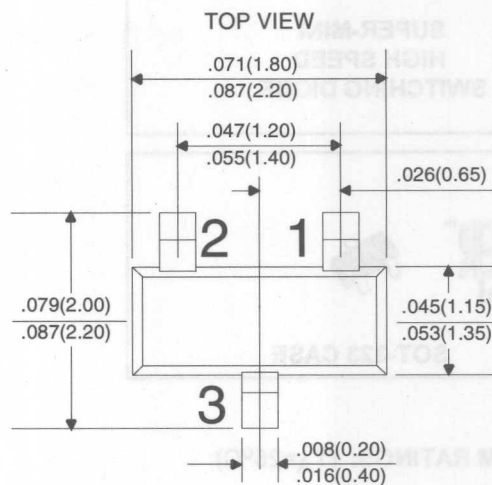
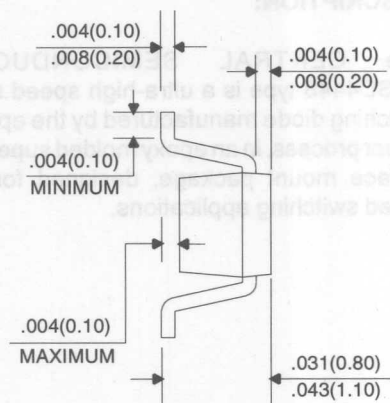
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	75	V
Average Forward Current	I _O	200	mA
Peak Forward Current	I _{FM}	300	mA
Power Dissipation	P _D	250	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	500	°C/W

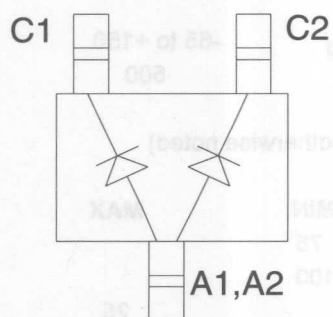
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV _R	I _R =100μA	75			V
I _R	V _R =50V			100	nA
V _F	I _F =10mA			1.0	V
V _F	I _F =50mA			1.0	V
V _F	I _F =100mA			1.2	V
C _T	V _R =0, f=1 MHz		1.5	6.0	pF
t _{rr}	I _R =I _F =10mA, R _L =100Ω, Rec. to 1.0mA			4.0	ns

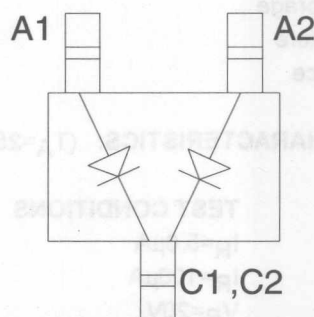
All dimensions in inches (mm).



Lead Code



CMSD2836



CMSD2838

DATA
SHEET

CMSD4448

**SUPER-MINI
HIGH SPEED
SWITCHING DIODE**

**SUPER[™]
mini**



SOT-323 CASE

Semiconductor Corp.

DESCRIPTION:

The **CENTRAL SEMICONDUCTOR** CMSD4448 type is a ultra-high speed silicon switching diode manufactured by the epitaxial planar process, in an epoxy molded super-mini surface mount package, designed for high speed switching applications.

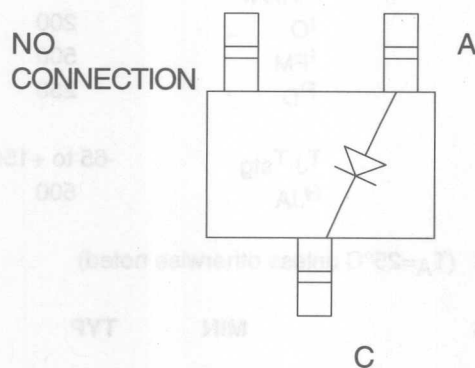
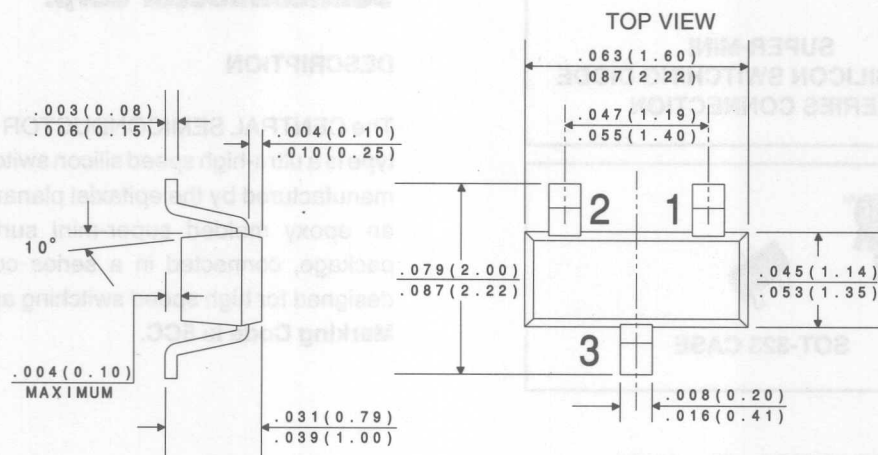
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Continuous Reverse Voltage	V_R	75	V
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Continuous Forward Current	I_F	250	mA
Peak Repetitive Forward Current	I_{FRM}	250	mA
Forward Surge Current, $t_p=1\mu\text{sec.}$	I_{FSM}	4000	mA
Forward Surge Current, $t_p=1\text{ sec.}$	I_{FSM}	1000	mA
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	500	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V_{BR}	$I_R=5.0\mu\text{A}$	75		V
V_{BR}	$I_R=100\mu\text{A}$	100		V
I_R	$V_R=20\text{V}$		25	mA
V_F	$I_F=5.0\text{mA}$	0.62	0.72	V
V_F	$I_F=100\text{mA}$		1.0	V
C_T	$V_R=0, f=1\text{ MHz}$		4.0	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\Omega, \text{Rec. to } 1.0\text{mA}$		4.0	ns

All dimensions in inches (mm).



DATA
SHEET

R1



CMSD7000

**SUPER-MINI
DUAL SILICON SWITCHING DIODE
SERIES CONNECTION**

**SUPERTM
mini**



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMSD7000 type is a ultra-high speed silicon switching diodes manufactured by the epitaxial planar process, in an epoxy molded super-mini surface mount package, connected in a series configuration, designed for high speed switching applications. **Marking Code is 5CC.**

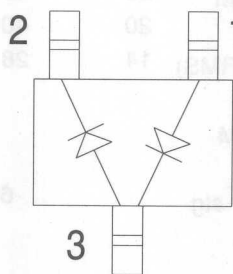
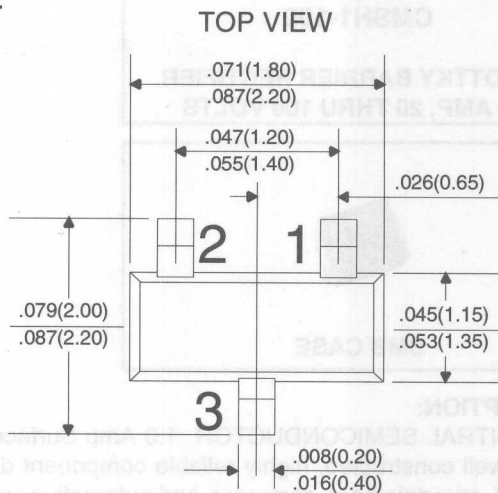
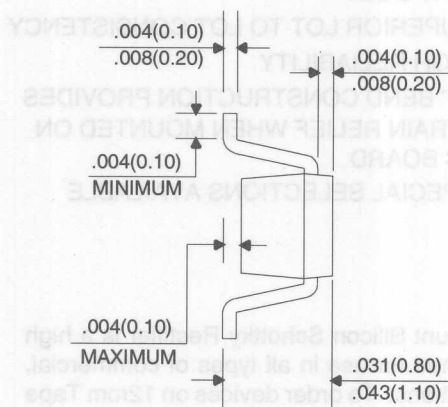
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Average Forward Current	I_O	200	mA
Peak Forward Current	I_{FM}	500	mA
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	500	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_R	$I_R=100\mu\text{A}$	100			V
I_R	$V_R=50\text{V}$			300	nA
I_R	$V_R=50\text{V}, T_A=125^\circ\text{C}$			100	μA
I_R	$V_R=100\text{V}$			500	nA
V_F	$I_F=1.0\text{mA}$	0.55		0.70	V
V_F	$I_F=10\text{mA}$	0.67		0.82	V
V_F	$I_F=100\text{mA}$	0.75		1.10	V
C_T	$V_R=0, f=1\text{ MHz}$			1.5	pF
t_{rr}	$I_R=I_F=10\text{mA}, R_L=100\Omega, \text{Rec. to } 1.0\text{mA}$		2.0	4.0	ns

All Dimensions in Inches (mm).



Lead Code:

- 1) Anode 2
- 2) Cathode 1
- 3) Anode 1, Cathode 2

DATA
SHEET

CM SH1-20
CM SH1-40
CM SH1-60
CM SH1-100

SCHOTTKY BARRIER RECTIFIER
1.0 AMP, 20 THRU 100 VOLTS



SMB CASE

CentralTM
Semiconductor Corp.

FEATURES:

- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

		CM SH1 -20	CM SH1 -40	CM SH1 -60	CM SH1 -100	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	28	42	70	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O			1.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			30		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		20			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=1.0\text{A}$ (CM SH1-20 AND CM SH1-40)			0.55	V
V_F	$I_F=1.0\text{A}$ (CM SH1-60)			0.70	V
V_F	$I_F=1.0\text{A}$ (CM SH1-100)			0.85	V
I_R	$V_R=\text{Rated } V_{RRM}$			0.50	mA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=125^{\circ}\text{C}$			20	mA

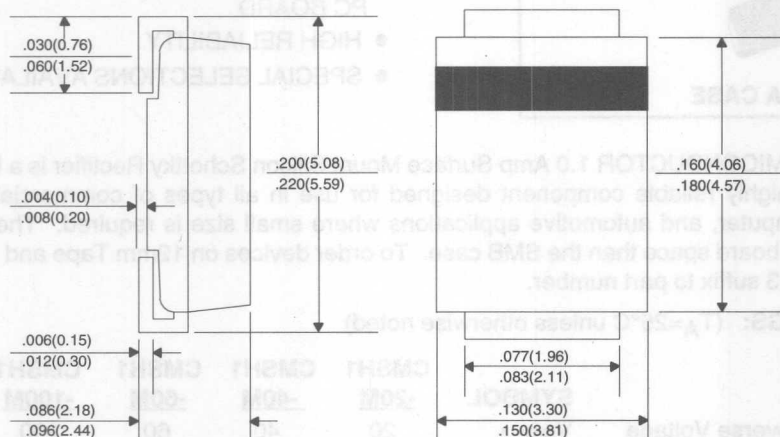
SYMBOL TEST CONDITIONS

C _J	V _R =4.0V, f=1.0MHz, (CM SH1-20 AND CM SH1-40)
C _J	V _R =4.0V, f=1.0MHz, (CM SH1-60)
C _J	V _R =4.0V, f=1.0MHz, (CM SH1-100)

MIN TYP MAX UNITS

110	pF
80	pF
50	pF

All dimensions in inches (mm).


Marking Codes:

DEVICE	MARKING CODE
CM SH1-20	CS20
CM SH1-40	CS40
CM SH1-60	CS60
CM SH1-100	CS100

 DATA
SHEET

R1

CM SH1-20M
CM SH1-40M
CM SH1-60M
NEW! CM SH1-100M

SCHOTTKY BARRIER RECTIFIER
1.0 AMP, 20 THRU 100 VOLTS

SUPERTM
mini



SMA CASE

CentralTM
Semiconductor Corp.

FEATURES:

- SUPER MINIATURE CASE
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- HIGH RELIABILITY
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

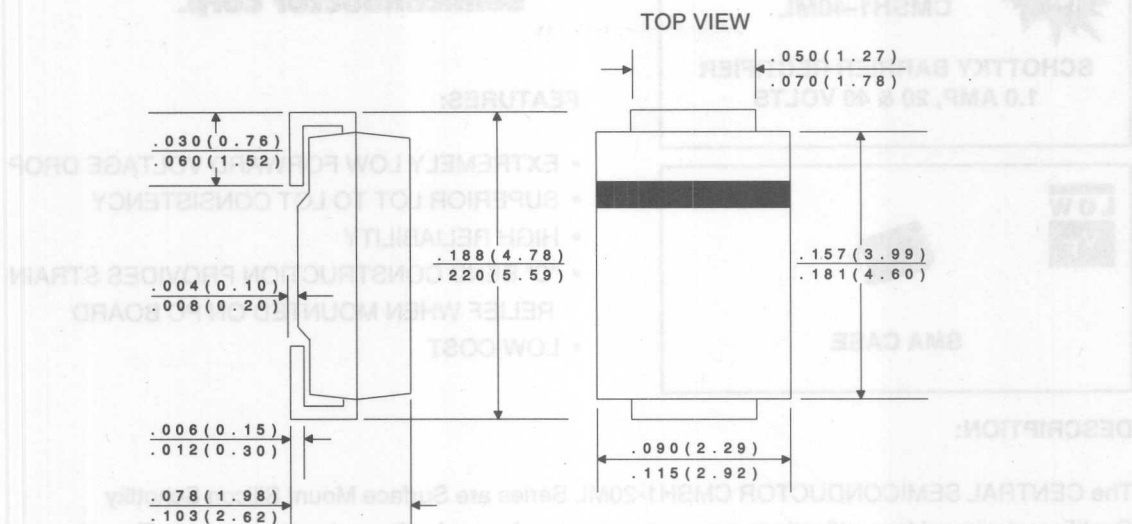
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CM SH1 -20M	CM SH1 -40M	CM SH1 -60M	CM SH1 -100M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	28	42	70	V
Average Forward Current($T_L=75^{\circ}\text{C}$)	I_O	1.0	1.0			A
Average Forward Current($T_L=100^{\circ}\text{C}$)	I_O			1.0	1.0	A
Peak Forward Surge Current (8.3ms)	I_{FSM}	30	30	30	30	A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^{\circ}\text{C}$
Thermal Resistance	Θ_{JL}	30	30	30	30	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_F	$I_F=1.0\text{A}$ (CM SH1-20M AND CM SH1-40M)			0.50	V
V_F	$I_F=1.0\text{A}$ (CM SH1-60M)			0.70	V
V_F	$I_F=1.0\text{A}$ (CM SH1-100M)			0.85	V
I_R	$V_R=\text{Rated } V_{RRM}$			0.50	mA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^{\circ}\text{C}$			10	mA
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$, (CM SH1-20M AND CM SH1-40M)		100		pF
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$, (CM SH1-60M)		80		pF
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$, (CM SH1-100M)		50		pF

All dimensions in inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMSH1-20M	CS20M
CMSH1-40M	CS40M
CMSH1-60M	CS60M
CMSH1-100M	CS100M

DATA
SHEET



CMSH1-20ML
CMSH1-40ML

SCHOTTKY BARRIER RECTIFIER
1.0 AMP, 20 & 40 VOLTS

Central
Semiconductor Corp.

LOW
V_F



SMA CASE

FEATURES:

- EXTREMELY LOW FORWARD VOLTAGE DROP
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- LOW COST

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMSH1-20ML Series are Surface Mount Silicon Schottky Rectifiers designed for applications where extremely low forward voltage drop is required. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

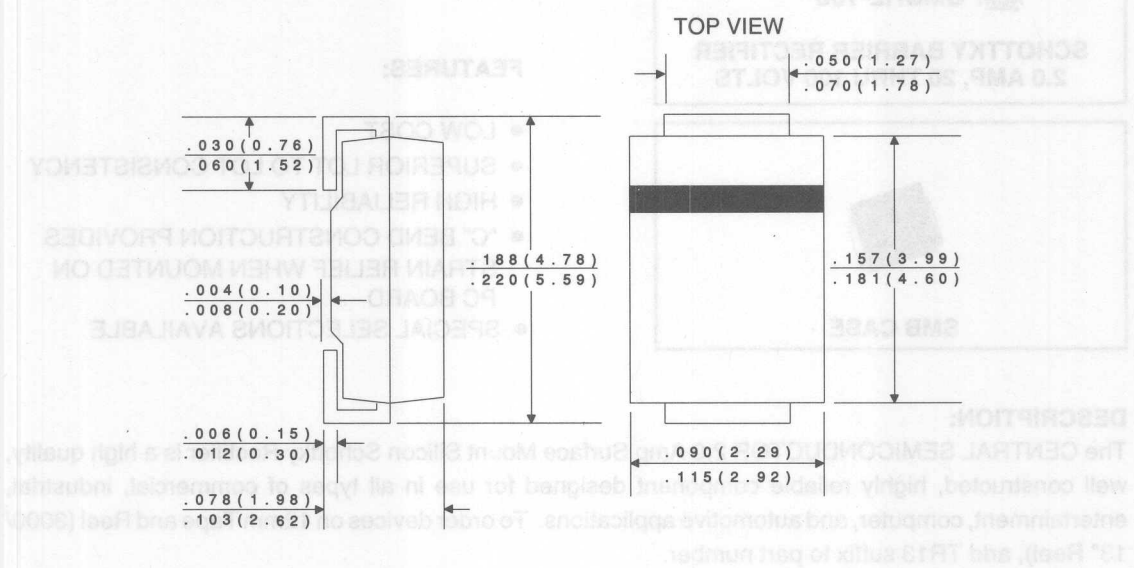
MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

	SYMBOL	CMSH1-20ML	CMSH1-40ML	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	20	40	V
DC Blocking Voltage	V _R	20	40	V
RMS Reverse Voltage	V _R (RMS)	14	28	V
Average Forward Current	I _O	1.0		A
Peak Forward Surge Current (8.3ms)	I _{FSM}	30		A
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JL}	28		°C/W
Thermal Resistance	θ _{JA}	88		°C/W

ELECTRICAL CHARACTERISTICS: (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _R	V _R =Rated V _{RRM}			0.5	mA
I _R	V _R = Rated V _{RRM} , T _C =100°C			20	mA
V _F	I _F =1.0A (CMSH1-20ML)			0.38	V
V _F	I _F =1.0A (CMSH1-40ML)			0.40	V

All Dimensions in Inches (mm).



DEVICE	MARKING CODE
CSMH1-20ML	CS20ML
CSMH1-40ML	CS40ML

DATA SHEET

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_F	V_F -Rated V_{RRM}			0.30	mA
I_R	V_F -Rated V_{RRM} $T_A=100^{\circ}C$			20	mA
V_F	$I_F=2.0A$ (CSMH1-20 and CSMH1-40)			0.80	V
V_F	$I_F=2.0A$ (CSMH1-60)			0.70	V
V_F	$I_F=2.0A$ (CSMH1-100)			0.85	V
$R_{\theta JA}$	$V_F=1.0V$, $I_F=1.0mA$ (CSMH1-20 and CSMH1-40)	150			$^{\circ}C/W$
$R_{\theta JA}$	$V_F=1.0V$, $I_F=1.0mA$ (CSMH1-60 and CSMH1-100)	150			$^{\circ}C/W$

CM SH2-20
CM SH2-40
CM SH2-60
NEW! CM SH2-100

SCHOTTKY BARRIER RECTIFIER
2.0 AMP, 20 THRU 100 VOLTS



SMB CASE

CentralTM
Semiconductor Corp.

FEATURES:

- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

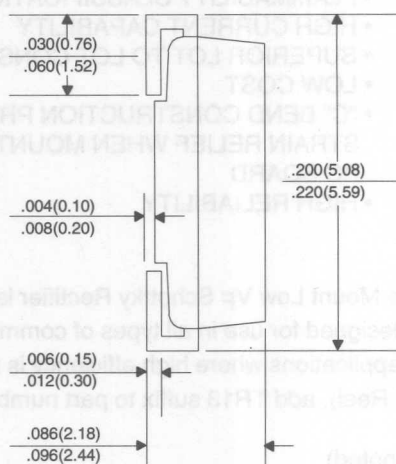
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

		CM SH2 -20	CM SH2 -40	CM SH2 -60	CM SH2 -100	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_R(\text{RMS})$	14	28	42	71	V
Average Forward Current ($T_A=55^{\circ}\text{C}$)	I_O		2.0			A
Peak Forward Surge Current (8.3ms)	I_{FSM}		50			A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		20			$^{\circ}\text{C/W}$

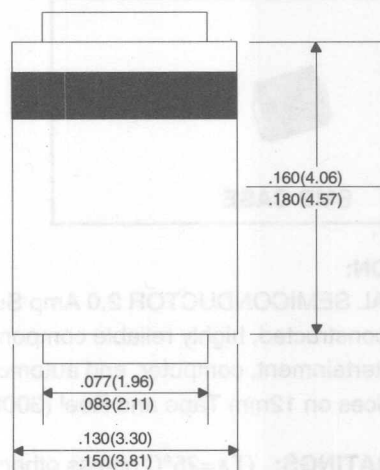
ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	V_R =Rated V_{RRM}			0.50	mA
I_R	V_R =Rated V_{RRM} , $T_A=100^{\circ}\text{C}$			20	mA
V_F	$I_F=2.0\text{A}$ (CM SH2-20 AND CM SH2-40)			0.50	V
V_F	$I_F=2.0\text{A}$ (CM SH2-60)			0.70	V
V_F	$I_F=2.0\text{A}$ (CM SH2-100)			0.85	V
C_J	$V_R=4.0\text{V}$, $f=1.0\text{MHz}$, (CM SH2-20 AND CM SH2-40)		150		pF
C_J	$V_R=4.0\text{V}$, $f=1.0\text{MHz}$, (CM SH2-60 AND CM SH2-100)		120		pF

All dimensions in inches (mm).



TOP VIEW



Marking Codes:

DEVICE	MARKING CODE
CMSH2-20	CS220
CMSH2-40	CS240
CMSH2-60	CS260
CMSH2-100	CS2100

DATA
SHEET

R2



**LOW FORWARD VOLTAGE
SCHOTTKY BARRIER RECTIFIER
2.0 AMP, 20 AND 40 VOLTS**

**LOW
V_F**



SMB CASE

Semiconductor Corp.

FEATURES:

- LOW FORWARD VOLTAGE DROP
- FLAMMABILITY CLASSIFICATION UL94V-0
- HIGH CURRENT CAPABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- HIGH RELIABILITY

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2.0 Amp Surface Mount Low V_F Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where high efficiency is required. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

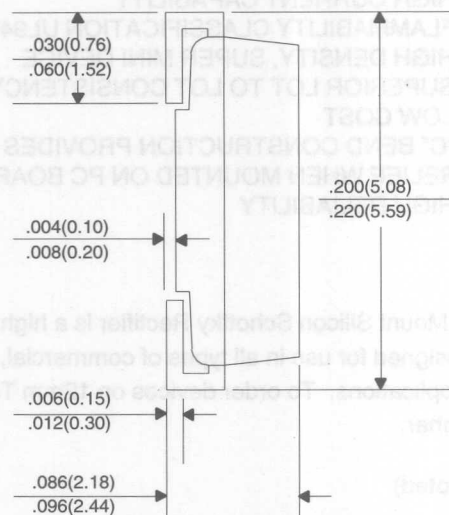
MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

	SYMBOL	CMSH2-20L	CMSH2-40L	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	20	40	V
DC Blocking Voltage	V _R	20	40	V
RMS Reverse Voltage	V _{R(RMS)}	14	28	V
Average Forward Current(T _L =105°C)	I _O		2.0	A
Peak Forward Surge Current (8.3ms)	I _{FSM}		50	A
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JL}	20		°C/W

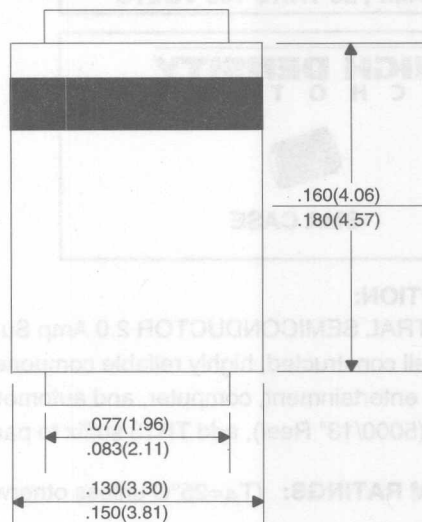
ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _R	V _R =Rated V _{RRM}			0.50	mA
I _R	V _R =Rated V _{RRM} , T _A =100°C			20	mA
V _F	I _F =2.0A (CMSH2-20L)			0.38	V
V _F	I _F =2.0A (CMSH2-40L)			0.40	V
C _J	V _R =4.0V, f=1.0MHz		150		pF

All Dimensions in Inches (mm).



TOP VIEW



Marking Codes:

DEVICE	MARKING CODE
CSMH2-20L	CS220L
CSMH2-40L	CS240L

DATA
SHEET



CM SH2-20M
CM SH2-40M
CM SH2-60M
CM SH2-100M

HIGH DENSITY
SCHOTTKY BARRIER RECTIFIER
2.0 AMP, 20 THRU 100 VOLTS

HIGH DENSITY
SCHOTTKY



SMA CASE

CentralTM
Semiconductor Corp.

FEATURES:

- HIGH CURRENT CAPABILITY
- FLAMMABILITY CLASSIFICATION UL94V-0
- HIGH DENSITY, SUPER MINI DEVICE
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- HIGH RELIABILITY

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

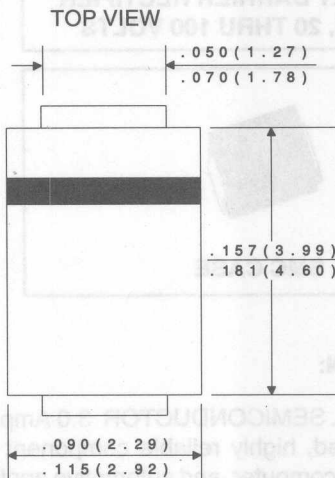
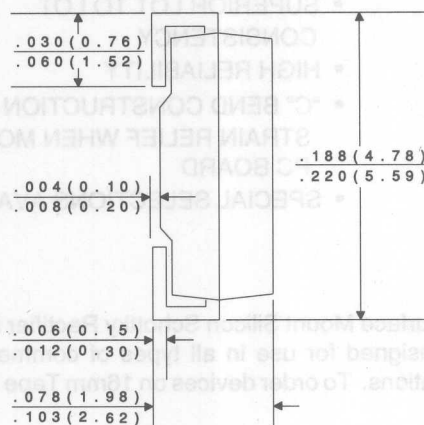
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CM SH2 -20M	CM SH2 -40M	CM SH2 -60M	CM SH2 -100M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	28	42	71	V
Average Forward Current ($T_L=75^\circ\text{C}$)	I_O			2.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			50		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^\circ\text{C}$
Thermal Resistance	Θ_{JL}		30			$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			0.50	mA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^\circ\text{C}$			20	mA
V_F	$I_F=2.0\text{A (CM SH2-20M AND CM SH2-40M)}$			0.55	V
V_F	$I_F=2.0\text{A (CM SH2-60M)}$			0.70	V
V_F	$I_F=2.0\text{A (CM SH2-100M)}$			0.85	V
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz, (CM SH2-20M AND CM SH2-40M)}$		150		pF
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz, (CM SH2-60M AND CM SH2-100M)}$		120		pF

All Dimensions in Inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMSH2-20M	CS220M
CMSH2-40M	CS240M
CMSH2-60M	CS260M
CMSH2-100M	CS2100M

DATA
SHEET

CMSH3-60
NEW! CMSH3-100

SCHOTTKY BARRIER RECTIFIER
3.0 AMP, 20 THRU 100 VOLTS



SMC CASE

Semiconductor Corp.

FEATURES:

- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 16mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

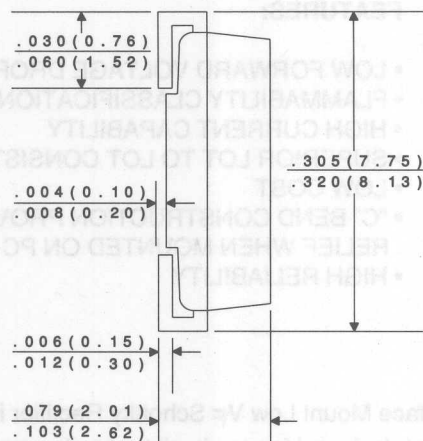
MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CMSH3 -20	CMSH3 -40	CMSH3 -60	CMSH3 -100	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	28	42	71	V
Average Forward Current ($T_A=75^{\circ}\text{C}$)	I_O			3.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			150		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^{\circ}\text{C}$
Thermal Resistance	θ_{JL}		10			$^{\circ}\text{C/W}$

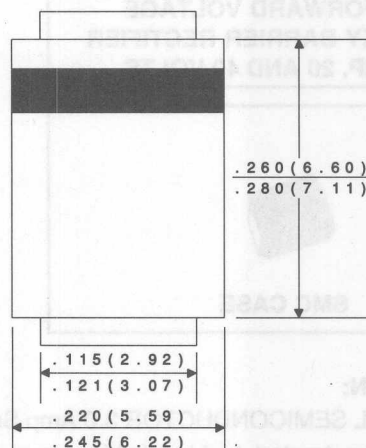
ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			500	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^{\circ}\text{C}$			20	mA
V_F	$I_F=3.0\text{A (CMSH3-20 AND CMSH3-40)}$			0.50	V
V_F	$I_F=3.0\text{A (CMSH3-60)}$			0.70	V
V_F	$I_F=3.0\text{A (CMSH3-100)}$			0.80	V

All dimensions in inches (mm).



TOP VIEW



Marking Codes:

DEVICE	MARKING CODE
CMSH3-20	CS320
CMSH3-40	CS340
CMSH3-60	CS360
CMSH3-100	CS3100


DATA SHEET

R1

NEW CSMH3-20L
CSMH3-40L

**LOW FORWARD VOLTAGE
SCHOTTKY BARRIER RECTIFIER
3.0 AMP, 20 AND 40 VOLTS**

**LOW
V_F**



SMC CASE

CentralTM Semiconductor Corp.

FEATURES:

- LOW FORWARD VOLTAGE DROP
- FLAMMABILITY CLASSIFICATION UL94V-0
- HIGH CURRENT CAPABILITY
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- HIGH RELIABILITY

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3.0 Amp Surface Mount Low V_F Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where high efficiency is required. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

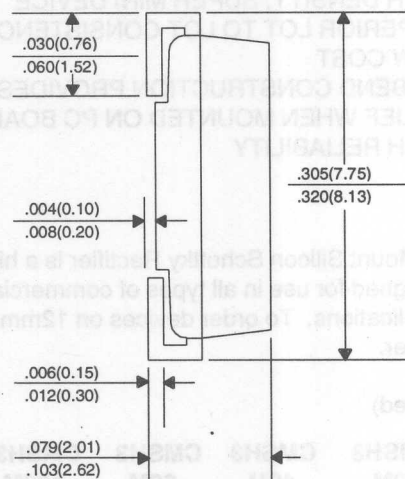
MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

	SYMBOL	CSMH3-20L	CSMH3-40L	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	20	40	V
DC Blocking Voltage	V _R	20	40	V
RMS Reverse Voltage	V _R (RMS)	14	28	V
Average Forward Current (T _L =75°C)	I _O		3.0	A
Peak Forward Surge Current (8.3ms)	I _{FSM}		100	A
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JL}	10		°C/W

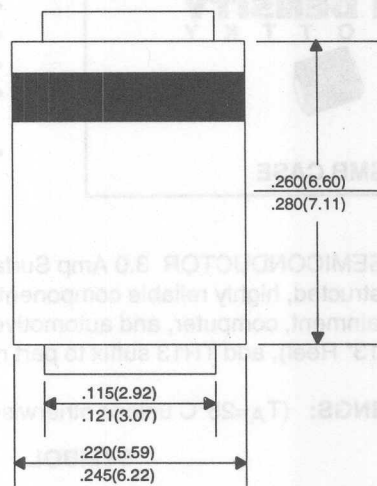
ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _R	V _R =Rated V _{RRM}			0.50	mA
I _R	V _R =Rated V _{RRM} , T _A =100°C			20	mA
V _F	I _F =3.0A (CSMH3-20L)			0.38	V
V _F	I _F =3.0A (CSMH3-40L)			0.40	V
C _J	V _R =4.0V, f=1.0MHz		260		pF

All Dimensions in Inches (mm)



TOP VIEW



DATA
SHEET

Marking Codes:

DEVICE	MARKING CODE
CSMH3-20L	CS320L
CSMH3-40L	CS340L



CMSH3-60M
CMSH3-100M

HIGH DENSITY
SCHOTTKY BARRIER RECTIFIER
3.0 AMP, 20 THRU 100 VOLTS

HIGH DENSITY
S C H O T T K Y



SMB CASE

semiconductor Corp.

FEATURES:

- HIGH CURRENT CAPABILITY
- FLAMMABILITY CLASSIFICATION UL94V-0
- HIGH DENSITY, SUPER MINI DEVICE
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- HIGH RELIABILITY

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 12mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

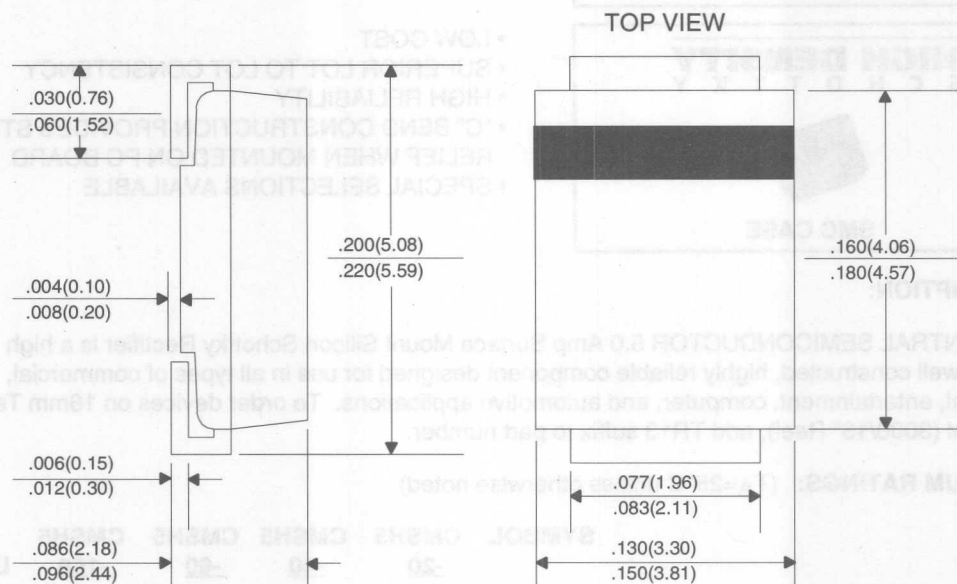
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMSH3 -20M	CMSH3 -40M	CMSH3 -60M	CMSH3 -100M	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_R(\text{RMS})$	14	28	42	71	V
Average Forward Current ($T_L=75^\circ\text{C}$)	I_O			3.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			80		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^\circ\text{C}$
Thermal Resistance	θ_{JL}		20			$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			500	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^\circ\text{C}$			20	mA
V_F	$I_F=3.0\text{A}$ (CMSH3-20M AND CMSH3-40M)			0.55	V
V_F	$I_F=3.0\text{A}$ (CMSH3-60M)			0.75	V
V_F	$I_F=3.0\text{A}$ (CMSH3-100M)			0.85	V
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		280		pF

All Dimensions in Inches (mm).



Marking Codes:

DEVICE	MARKING CODE
CMSH3-20M	CS320M
CMSH3-40M	CS340M
CMSH3-60M	CS360M
CMSH3-100M	CS3100M

DATA
SHEET



CMSH5-20
CMSH5-40
CMSH5-60
CMSH5-100

HIGH DENSITY
SCHOTTKY BARRIER RECTIFIER
5.0 AMP, 20 THRU 100 VOLTS

HIGH DENSITY
SCHOTTKY



SMC CASE

CentralTM
Semiconductor Corp.

FEATURES:

- LOW COST
- SUPERIOR LOT TO LOT CONSISTENCY
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD
- SPECIAL SELECTIONS AVAILABLE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 5.0 Amp Surface Mount Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications. To order devices on 16mm Tape and Reel (3000/13" Reel), add TR13 suffix to part number.

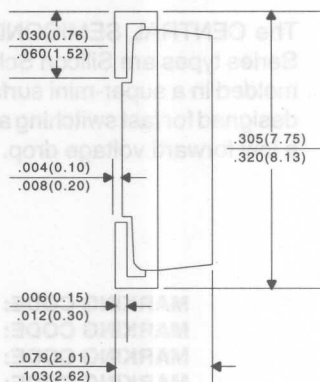
MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CMSH5 -20	CMSH5 -40	CMSH5 -60	CMSH5 -100	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	20	40	60	100	V
DC Blocking Voltage	V_R	20	40	60	100	V
RMS Reverse Voltage	$V_R(\text{RMS})$	14	28	42	71	V
Average Forward Current ($T_A=75^\circ\text{C}$)	I_O			5.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}			125		A
Operating and Storage						
Junction Temperature	T_J, T_{stg}		-65 to +150			$^\circ\text{C}$
Thermal Resistance	θ_{JL}		10			$^\circ\text{C/W}$

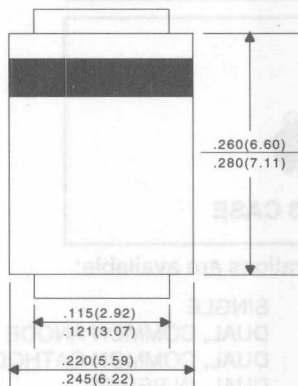
ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=\text{Rated } V_{RRM}$			3.0	mA
I_R	$V_R=\text{Rated } V_{RRM}, T_A=100^\circ\text{C}$			20	mA
V_F	$I_F=5.0\text{A (CMSH5-20 AND CMSH5-40)}$			0.55	V
V_F	$I_F=5.0\text{A (CMSH5-60)}$			0.75	V
V_F	$I_F=5.0\text{A (CMSH5-100)}$			0.85	V

All Dimensions in Inches (mm).



TOP VIEW



Marking Codes:

DEVICE	MARKING CODE
CSMH5-20	CS520
CSMH5-40	CS540
CSMH5-60	CS560
CSMH5-100	CS5100

DATA
SHEET



CMSSH-3A
CMSSH-3C
CMSSH-3S

SUPER-MINI SCHOTTKY DIODES

**SUPERTM
mini**



SOT-323 CASE

Central Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CMSSH-3 Series types are Silicon Schottky diodes, epoxy molded in a super-mini surface mount package, designed for fast switching applications requiring a low forward voltage drop.

The following configurations are available:

CMSSH-3	SINGLE
CMSSH-3A	DUAL, COMMON ANODE
CMSSH-3C	DUAL, COMMON CATHODE
CMSSH-3S	DUAL, IN SERIES

MARKING CODE: 95D
MARKING CODE: B1D
MARKING CODE: B2D
MARKING CODE: A5D

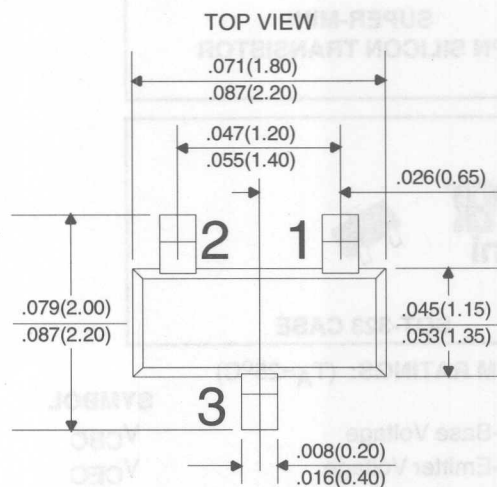
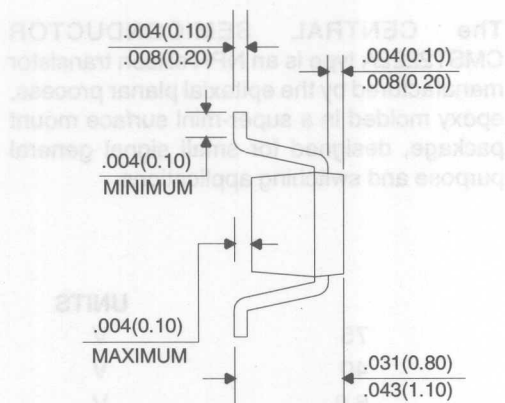
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	30	V
Continuous Forward Current	I _F	100	mA
Peak Repetitive Forward Current	I _{FRM}	350	mA
Forward Surge Current, tp=10ms	I _{FSM}	750	mA
Power Dissipation	P _D	250	mW
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	500	°C/W

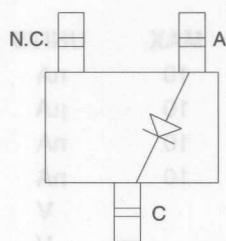
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
B _V R	I _R =100μA	30			V
V _F	I _F =2.0mA		0.29	0.33	V
V _F	I _F =15mA		0.40	0.45	V
V _F	I _F =100mA		0.74	1.00	V
I _R	V _R =25V		90	500	nA
I _R	V _R =25V, T _A =100°C		25	100	μA
C _T	V _R =1.0V, f=1 MHz		7.0		pF
t _{rr}	I _F =I _R =10mA, I _{rr} =1.0mA, R _L =100Ω			5.0	ns

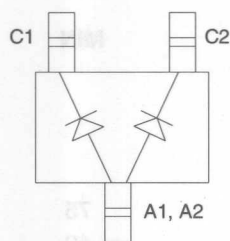
All Dimensions in Inches (mm).



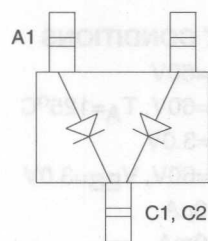
Lead Code



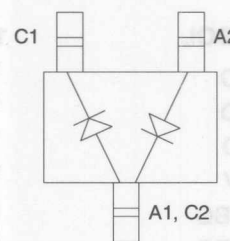
CMSSH-3



CMSSH-3A



CMSSH-3C



CMSSH-3S

DATA SHEET

CMST2222A

SUPER-MINI
NPN SILICON TRANSISTOR

**SUPERTM
mini**



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMST2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a super-mini surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	500	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$		10	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{EBO}	$V_{EB}=3.0\text{V}$		10	nA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	75		V
BV_{CEO}	$I_C=10\text{mA}$	40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		

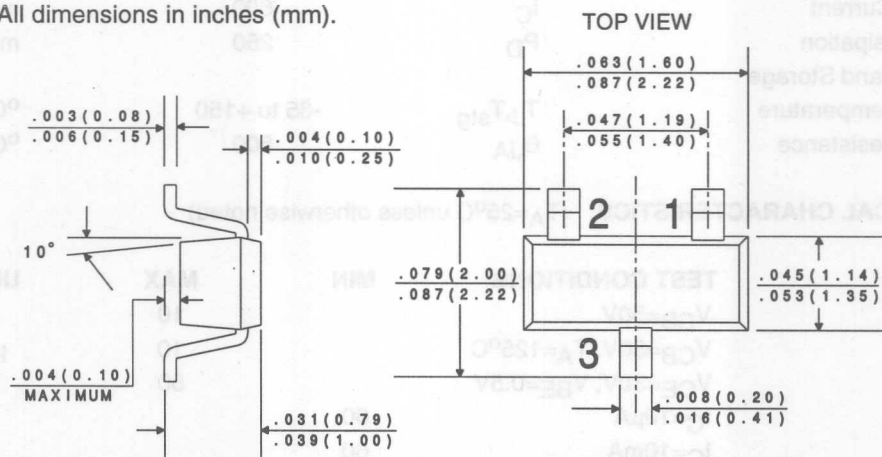
SYMBOL

TEST CONDITIONS

h_{FE}	$V_{CE}=10V, I_C=150mA$
h_{FE}	$V_{CE}=1.0V, I_C=150mA$
h_{FE}	$V_{CE}=10V, I_C=500mA$
f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$
h_{ie}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$
h_{re}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$
h_{fe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$
h_{oe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$
$r_b'C_C$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$
NF	$V_{CE}=10V, I_C=100mA, R_S=1.0k\Omega, f=1.0kHz$
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$

MIN	MAX	UNITS
100	300	
50		
40		
300		MHz
	8.0	pF
	25	pF
2.0	8.0	k Ω
0.25	1.25	k Ω
	8.0	$\times 10^{-4}$
	4.0	$\times 10^{-4}$
50	300	
75	375	
5.0	35	μ mhos
25	200	μ mhos
	150	ps
	4.0	dB
	10	ns
	25	ns
	225	ns
	60	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R1

CMST2907A

SUPER-MINI
PNP SILICON TRANSISTOR

SUPER[™]
mini



SOT-323 CASE

Central Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMST2907A type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a super-mini surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

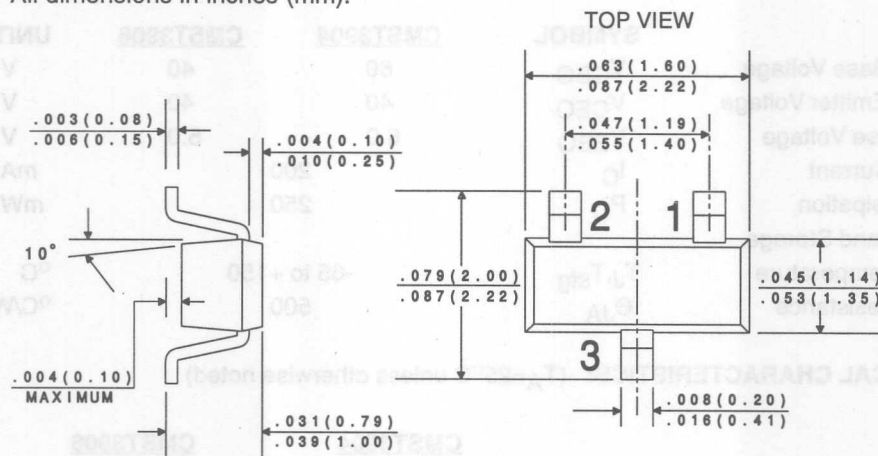
	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	250	mW
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	500	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=50\text{V}$		10	nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{CEV}	$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$		50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		V
BV_{CEO}	$I_C=10\text{mA}$	60		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	75		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=10mA$	100		
h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=10V, I_C=500mA$	50		
f_T	$V_{CE}=20V, I_C=50mA, f=100MHz$	200		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{BE}=2.0V, I_C=0, f=1.0MHz$		30	pF
t_{on}	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		45	ns
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		40	ns
t_{off}	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		100	ns
t_s	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		80	ns
t_f	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		30	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R1

CMST3904 NPN
CMST3906 PNP

SUPER-MINI
COMPLEMENTARY
SILICON TRANSISTORS

**SUPER
mini**



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMST3904, CMST3906 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a super-mini surface mount package, designed for small signal general purpose amplifier and switching applications.

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

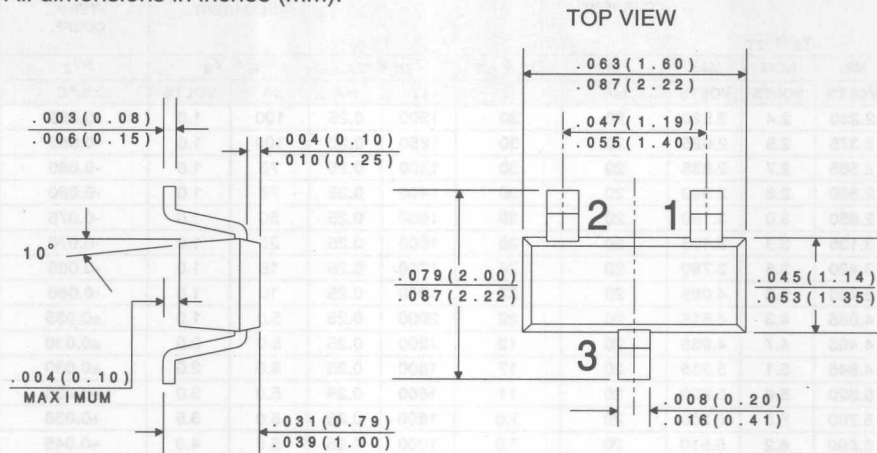
	SYMBOL	CMST3904	CMST3906	UNITS
Collector-Base Voltage	V_{CBO}	60	40	V
Collector-Emitter Voltage	V_{CEO}	40	40	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	200		mA
Power Dissipation	P_D	250		mW
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	500		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMST3904		CMST3906		UNITS
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
BV_{CBO}	$I_C=10\mu\text{A}$		60		40	V
BV_{CEO}	$I_C=1.0\text{mA}$		40		40	V
BV_{EBO}	$I_E=10\mu\text{A}$		6.0		5.0	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20		0.25	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.30		0.40	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.95		0.95	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70		80		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	300	100	300	

SYMBOL	TEST CONDITIONS	CMST3904		CMST3906		UNITS
		MIN	MAX	MIN	MAX	
h_{FE}	$V_{CE}=1.0V, I_C=50mA$	60		60		
h_{FE}	$V_{CE}=1.0V, I_C=100mA$	30		30		
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300		250		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0		4.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0		10	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	10	2.0	12	$k\Omega$
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	100	400	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	40	3.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100mA, R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$		5.0		4.0	dB
t_d	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_r	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_s	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200		225	ns
t_f	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50		75	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

DATA
SHEET

R1



CMSZ5221B
THRU
CMSZ5261B

250 mW ZENER DIODE
5% TOLERANCE

**SUPERTM
mini**



SOT-323 CASE

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
Operating and Storage Temperature
Thermal Resistance

Central
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMSZ5221B Series Silicon Zener Diode is a high quality voltage regulator for use in industrial, commercial, entertainment and computer applications. Higher voltage devices are available on special order.

SYMBOL

P_D	250	mW
T_J, T_{stg}	-65 to + 175	$^{\circ}\text{C}$
Θ_{JA}	500	$^{\circ}\text{C/W}$

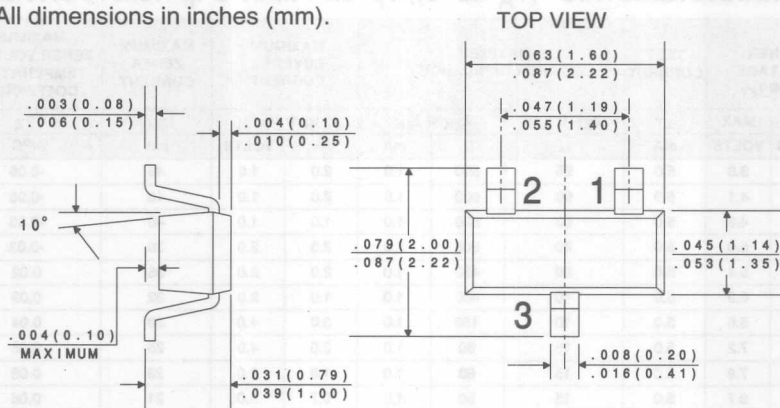
UNITS

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX @ } I_F = 10\text{mA}$ FOR ALL TYPES.

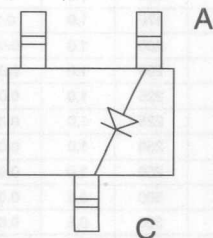
TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAX. TEMP. COEFF.	MARKING CODE
	V _Z @ I _{ZT}				Z _{ZT} @ I _{ZT}		Z _{ZK} @ I _{ZK}	I _R @ V _R				θV_{Z}
	MIN VOLTS	NOM VOLTS	MAX VOLTS		I _{ZT} mA	Ω	Ω	mA	μA	VOLTS		%/°C
CMSZ5221B	2.280	2.4	2.520	20	30	1200	0.25	100	1.0	-0.085	8A1
CMSZ5222B	2.375	2.5	2.625	20	30	1250	0.25	100	1.0	-0.085	8B1
CMSZ5223B	2.565	2.7	2.835	20	30	1300	0.25	75	1.0	-0.080	8C1
CMSZ5224B	2.660	2.8	2.940	20	30	1400	0.25	75	1.0	-0.080	8D1
CMSZ5225B	2.850	3.0	3.150	20	29	1600	0.25	50	1.0	-0.075	8E1
CMSZ5226B	3.135	3.3	3.465	20	28	1600	0.25	25	1.0	-0.070	8AC
CMSZ5227B	3.420	3.6	3.780	20	24	1700	0.25	15	1.0	-0.065	8BC
CMSZ5228B	3.705	3.9	4.095	20	23	1900	0.25	10	1.0	-0.060	8CC
CMSZ5229B	4.085	4.3	4.515	20	22	2000	0.25	5.0	1.0	±0.055	8DC
CMSZ5230B	4.465	4.7	4.935	20	19	1900	0.25	5.0	2.0	±0.030	8EC
CMSZ5231B	4.845	5.1	5.355	20	17	1600	0.25	5.0	2.0	±0.030	8FC
CMSZ5232B	5.320	5.6	5.880	20	11	1600	0.25	5.0	3.0	+0.038	8GC
CMSZ5233B	5.700	6.0	6.300	20	7.0	1600	0.25	5.0	3.5	+0.038	8HC
CMSZ5234B	5.890	6.2	6.510	20	7.0	1000	0.25	5.0	4.0	+0.045	8JC
CMSZ5235B	6.460	6.8	7.140	20	5.0	750	0.25	3.0	5.0	+0.050	8KC
CMSZ5236B	7.125	7.5	7.875	20	6.0	500	0.25	3.0	6.0	+0.058	8LC
CMSZ5237B	7.790	8.2	8.610	20	8.0	500	0.25	3.0	6.5	+0.062	8MC
CMSZ5238B	8.265	8.7	9.135	20	8.0	600	0.25	3.0	6.5	+0.065	8NC
CMSZ5239B	8.645	9.1	9.555	20	10	600	0.25	3.0	7.0	+0.068	8PC
CMSZ5240B	9.500	10	10.50	20	17	600	0.25	3.0	8.0	+0.075	8QC
CMSZ5241B	10.45	11	11.55	20	22	600	0.25	2.0	8.4	+0.076	8RC
CMSZ5242B	11.40	12	12.60	20	30	600	0.25	1.0	9.1	+0.077	8SC
CMSZ5243B	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9	+0.079	8TC
CMSZ5244B	13.30	14	14.70	9.0	15	600	0.25	0.1	10	+0.082	8UC

TYPE	ZENER VOLTAGE			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAX. TEMP. COEFF.	MARKING CODE	
	V _Z @ I _{ZT}				Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}		I _R @ V _R				±V _Z
	MIN	NOM	MAX			mA	Ω	Ω	mA			μA
	VOLTS	VOLTS	VOLTS	mA	Ω	Ω	mA	μA	VOLTS	%/°C		
CMSZ5245B	14.25	15	15.75	8.5	16	600	0.25	0.1	11	+0.082	8VC	
CMSZ5246B	15.20	16	16.80	7.8	17	600	0.25	0.1	12	+0.083	8WC	
CMSZ5247B	16.15	17	17.85	7.4	19	600	0.25	0.1	13	+0.084	8XC	
CMSZ5248B	17.10	18	18.90	7.0	21	600	0.25	0.1	14	+0.085	8YC	
CMSZ5249B	18.05	19	19.95	6.6	23	600	0.25	0.1	14	+0.086	8ZC	
CMSZ5250B	19.00	20	21.00	6.2	25	600	0.25	0.1	15	+0.086	1A8	
CMSZ5251B	20.90	22	23.10	5.6	29	600	0.25	0.1	17	+0.087	1B8	
CMSZ5252B	22.80	24	25.20	5.2	33	600	0.25	0.1	18	+0.088	1C8	
CMSZ5253B	23.75	25	26.25	5.0	35	600	0.25	0.1	19	+0.089	1D8	
CMSZ5254B	25.65	27	28.35	4.6	41	600	0.25	0.1	21	+0.090	1E8	
CMSZ5255B	26.60	28	29.40	4.5	44	600	0.25	0.1	21	+0.091	1F8	
CMSZ5256B	28.50	30	31.50	4.2	49	600	0.25	0.1	23	+0.091	1G8	
CMSZ5257B	31.35	33	34.65	3.8	58	700	0.25	0.1	25	+0.092	1H8	
CMSZ5258B	34.20	36	37.80	3.4	70	700	0.25	0.1	27	+0.093	1J8	
CMSZ5259B	37.05	39	40.95	3.2	80	800	0.25	0.1	30	+0.094	1K8	
CMSZ5260B	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	1L8	
CMSZ5261B	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	1M8	

All dimensions in inches (mm).



NO CONNECTION



DATA SHEET

NEW CMSZDA3V6
THRU
CMSZDA33V

DUAL ZENER DIODE
3.6 VOLTS THRU 33 VOLTS
250mW, 5% TOLERANCE

SUPERTM
mini



SOT-323 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMSZDA3V6 Series Silicon Dual Zener Diode is a high quality voltage regulator, connected in a common anode configuration, for use in industrial, commercial, entertainment and computer applications.

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_A=25^{\circ}\text{C}$)
Operating and Storage Temperature
Thermal Resistance

SYMBOL

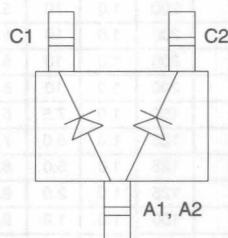
P_D 250
 T_J, T_{stg} -65 to +150
 Θ_{JA} 500

UNIT

mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$), $V_F=0.9\text{V MAX @ } I_F=10\text{mA FOR ALL TYPES.}$

TYPE NO.	ZENER VOLTAGE $V_Z @ I_{ZT}$		TEST CURRENT I_{ZT}	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAXIMUM ZENER CURRENT I_{ZM}	MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT ΘV_Z	MARKING CODE
	MIN	MAX		$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$				
	VOLTS	VOLTS		Ω	Ω	mA	μA	VOLTS		$\%/^{\circ}\text{C}$	
CMPZDA3V6	3.4	3.8	5.0	95	600	1.0	2.0	1.0	45	-0.06	W7W
CMPZDA3V9	3.7	4.1	5.0	90	600	1.0	2.0	1.0	43	-0.06	W8W
CMPZDA4V3	4.0	4.6	5.0	90	600	1.0	1.0	1.0	40	-0.05	W9W
CMPZDA4V7	4.4	5.0	5.0	80	500	1.0	3.0	2.0	38	-0.03	Z1Z
CMPZDA5V1	4.8	5.4	5.0	60	480	1.0	2.0	2.0	35	0.02	Z2Z
CMPZDA5V6	5.2	6.0	5.0	40	400	1.0	1.0	2.0	32	0.03	Z3Z
CMPZDA6V2	5.8	6.6	5.0	10	150	1.0	3.0	4.0	28	0.04	Z4Z
CMPZDA6V8	6.4	7.2	5.0	15	80	1.0	2.0	4.0	25	0.05	Z5Z
CMPZDA7V5	7.0	7.9	5.0	15	80	1.0	1.0	5.0	23	0.05	Z6Z
CMPZDA8V2	7.7	8.7	5.0	15	80	1.0	0.7	5.0	21	0.06	Z7Z
CMPZDA9V1	8.5	9.6	5.0	15	100	1.0	0.5	6.0	18	0.06	Z8Z
CMPZDA10V	9.4	10.6	5.0	20	150	1.0	0.2	7.0	16	0.07	Z9Z
CMPZDA11V	10.4	11.6	5.0	20	150	1.0	0.1	8.0	15	0.07	Y1Y
CMPZDA12V	11.4	12.7	5.0	25	150	1.0	0.1	8.0	13	0.07	Y2Y
CMPZDA13V	12.4	14.1	5.0	30	170	1.0	0.1	8.0	12	0.08	Y3Y
CMPZDA15V	13.8	15.6	5.0	30	200	1.0	0.05	10.5	11	0.08	Y4Y
CMPZDA16V	15.3	17.1	5.0	40	200	1.0	0.05	11.2	10	0.08	Y5Y
CMPZDA18V	16.8	19.1	5.0	45	225	1.0	0.05	12.6	9.2	0.08	Y6Y
CMPZDA20V	18.8	21.2	5.0	55	225	1.0	0.05	14.0	8.3	0.08	Y7Y
CMPZDA22V	20.8	23.3	5.0	55	250	1.0	0.05	15.4	7.6	0.09	Y8Y
CMPZDA24V	22.8	25.6	5.0	70	250	1.0	0.05	16.8	7.0	0.09	Y9Y
CMPZDA27V	25.1	28.9	2.0	80	300	0.5	0.05	18.9	6.2	0.09	10W
CMPZDA30V	28.0	32.0	2.0	80	300	0.5	0.05	21.0	5.6	0.09	11W
CMPZDA33V	31.0	35.0	2.0	80	325	0.5	0.05	23.1	5.0	0.09	12W



319



CMZ5342B
THRU
CMZ5388B

HIGH POWER ZENER DIODE
6.8 VOLTS THRU 200 VOLTS
5.0W, 5% TOLERANCE



SMC CASE

Central
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMZ5342B Series Silicon Zener Diode is a high quality voltage regulator, manufactured in an epoxy molded surface mount package, designed for use in industrial, commercial, entertainment and computer applications.

ABSOLUTE MAXIMUM RATINGS:

Power Dissipation (@ $T_A=25^\circ\text{C}$)
Operating and Storage Temperature

SYMBOL

PD
 T_J, T_{stg}

5.0
-65 to +150

UNITS

W
 $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$), $V_F=1.2\text{V MAX}$ @ $I_F=1.0\text{A}$ FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE V _Z @ I _{ZT}			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAXIMUM SURGE CURRENT (Note 1)	MAXIMUM VOLTAGE REGULATION (Note 2)		MAXIMUM REGULATOR CURRENT	MARKING CODE
	MIN	NOM	MAX		I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _R @ V _R	I _r		ΔV _Z	I _{ZM}		
	VOLT	VOLTS	VOLTS		mA	Ω	Ω	mA	μA		VOLTS	A		
CMZ5342B*	6.460	6.8	7.140	175	1.0	200	1.0	10	5.2	11.5	0.15	700	C5342B	
CMZ5343B*	7.125	7.5	7.875	175	1.5	200	1.0	10	5.7	10.7	0.15	630	C5343B	
CMZ5344B*	7.790	8.2	8.610	150	1.5	200	1.0	10	6.2	10.0	0.20	580	C5344B	
CMZ5345B*	8.265	8.7	9.135	150	2.0	200	1.0	10	6.6	7.5	0.20	545	C5345B	
CMZ5346B*	8.645	9.1	9.555	150	2.0	150	1.0	7.5	6.9	9.2	0.22	520	C5346B	
CMZ5347B	9.500	10	10.50	125	2.0	125	1.0	5.0	7.6	8.6	0.22	475	C5347B	
CMZ5348B	10.45	11	11.55	125	2.5	125	1.0	5.0	8.4	8.0	0.25	430	C5348B	
CMZ5349B	11.40	12	12.60	100	2.5	125	1.0	2.0	9.1	7.5	0.25	395	C5349B	
CMZ5350B	12.35	13	13.65	100	2.5	100	1.0	1.0	9.9	7.0	0.25	365	C5350B	
CMZ5351B	13.30	14	14.70	100	2.5	75	1.0	1.0	10.6	6.7	0.25	340	C5351B	
CMZ5352B	14.25	15	15.75	75	2.5	75	1.0	1.0	11.5	6.3	0.25	315	C5352B	
CMZ5353B	15.20	16	16.80	75	2.5	75	1.0	1.0	12.2	6.00	0.30	295	C5353B	
CMZ5354B	16.15	17	17.85	70	2.5	75	1.0	0.5	12.9	5.8	0.35	280	C5354B	
CMZ5355B	17.10	18	18.90	65	2.5	75	1.0	0.5	13.7	5.5	0.40	264	C5355B	
CMZ5356B	18.05	19	19.95	65	3.0	75	1.0	0.5	14.4	5.3	0.40	250	C5356B	
CMZ5357B	19.00	20	21.00	65	3.0	75	1.0	0.5	15.2	5.1	0.40	237	C5357B	
CMZ5358B	20.90	22	23.10	50	3.5	75	1.0	0.5	16.7	4.7	0.45	216	C5358B	
CMZ5359B	22.80	24	25.20	50	3.5	100	1.0	0.5	18.2	4.4	0.55	198	C5359B	
CMZ5360B	23.75	25	26.25	50	4.0	110	1.0	0.5	19.0	4.3	0.55	190	C5360B	
CMZ5361B	25.65	27	28.35	50	5.0	120	1.0	0.5	20.6	4.1	0.60	176	C5361B	
CMZ5362B	26.60	28	29.40	50	6.0	130	1.0	0.5	21.2	3.9	0.60	170	C5362B	
CMZ5363B	28.50	30	31.50	40	8.0	140	1.0	0.5	22.8	3.7	0.60	158	C5363B	
CMZ5364B	31.35	33	34.65	40	10	150	1.0	0.5	25.1	3.5	0.65	144	C5364B	
CMZ5365B	34.20	36	37.80	30	11	160	1.0	0.5	27.4	3.3	0.65	132	C5365B	

* Available on special order only, please consult factory.

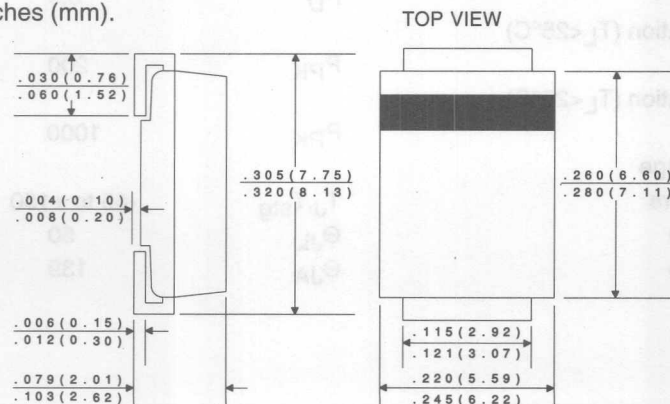
ELECTRICAL CHARACTERISTICS: (TA=25°C), VF=1.2V MAX @ IF=1.0A FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE $V_Z @ I_{ZT}$			TEST CURRENT	MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE CURRENT		MAXIMUM SURGE CURRENT (Note 1)	MAXIMUM VOLTAGE REGULATION (Note 2)	MAXIMUM REGULATOR CURRENT	MARKING CODE
	MIN	NOM	MAX		I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_R @ V_R$					
	VOLTS	VOLTS	VOLTS	mA	Ω	Ω	mA	μA	VOLTS	A	VOLTS	mA	
CMZ5366B	37.05	39	40.95	30	14	170	1.0	0.5	29.7	3.1	0.65	122	C5366B
CMZ5367B	40.85	43	45.15	30	20	190	1.0	0.5	32.7	2.8	0.70	110	C5367B
CMZ5368B	44.65	47	49.35	25	25	210	1.0	0.5	35.8	2.7	0.80	100	C5368B
CMZ5369B	48.45	51	53.55	25	27	230	1.0	0.5	38.8	2.5	0.90	93.0	C5369B
CMZ5370B	53.20	56	58.80	20	35	280	1.0	0.5	42.6	2.3	1.00	86.0	C5370B
CMZ5371B	57.00	60	63.00	20	40	350	1.0	0.5	45.5	2.2	1.20	79.0	C5371B
CMZ5372B	58.90	62	65.10	20	42	400	1.0	0.5	47.1	2.1	1.35	76.0	C5372B
CMZ5373B	64.60	68	71.40	20	44	500	1.0	0.5	51.7	2.0	1.50	70.0	C5373B
CMZ5374B	71.25	75	78.75	20	45	620	1.0	0.5	56.0	1.9	1.60	63.0	C5374B
CMZ5375B	77.90	82	86.10	15	65	720	1.0	0.5	62.2	1.8	1.80	58.0	C5375B
CMZ5376B	82.65	87	91.35	15	75	760	1.0	0.5	66.0	1.7	2.00	54.5	C5376B
CMZ5377B	86.45	91	95.55	15	75	760	1.0	0.5	69.2	1.6	2.20	52.5	C5377B
CMZ5378B	95.00	100	105.0	12	90	800	1.0	0.5	76.0	1.5	2.50	47.5	C5378B
CMZ5379B	104.5	110	115.5	12	125	1000	1.0	0.5	83.6	1.4	2.50	43.0	C5379B
CMZ5380B	114.0	120	126.0	10	170	1150	1.0	0.5	91.2	1.3	2.50	39.5	C5380B
CMZ5381B	123.5	130	136.5	10	190	1250	1.0	0.5	98.8	1.2	2.50	36.6	C5381B
CMZ5382B	133.0	140	147.0	8.0	230	1500	1.0	0.5	106	1.2	2.50	34.0	C5382B
CMZ5383B	142.5	150	157.5	8.0	330	1500	1.0	0.5	114	1.1	3.00	31.6	C5383B
CMZ5384B	152.0	160	168.0	8.0	350	1650	1.0	0.5	122	1.1	3.00	29.4	C5384B
CMZ5385B	161.5	170	178.5	8.0	380	1750	1.0	0.5	129	1.0	3.00	28.0	C5385B
CMZ5386B	171.0	180	189.0	5.0	430	1750	1.0	0.5	137	1.0	4.00	26.4	C5386B
CMZ5387B	180.5	190	199.5	5.0	450	1850	1.0	0.5	144	0.9	5.00	25.0	C5387B
CMZ5388B	190.0	200	210.0	5.0	480	1850	1.0	0.5	152	0.9	5.00	23.6	C5388B

Note 1. Surge Current (I_r) - Maximum allowable peak, non-recurrent square wave current (PW=8.3ms).

Note 2. Voltage Regulation (ΔV_Z) - V_Z Measurements are made at 10% and then at 50% of the I_Z max value listed in the electrical characteristics table. The test current time duration for each V_Z measurement is 40±10ms ($T_A=25^\circ C$).

All Dimensions in Inches (mm).

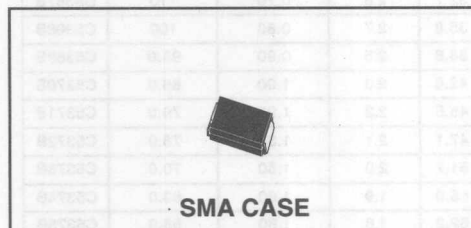


DATA
SHEET

R2

NEW CMZ5921B
THRU
CMZ5956B

**SURFACE MOUNT
SILICON ZENER DIODE**
1.5 WATT, 6.8 THRU 200 VOLTS
± 5% TOLERANCE



Central™
Semiconductor Corp.

FEATURES:

- SUPER MINIATURE CASE
- 200 WATTS OF TVS POWER
- ± 5% TOLERANCE
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW COST
- HIGH RELIABILITY
- "C" BEND CONSTRUCTION PROVIDES STRAIN RELIEF WHEN MOUNTED ON PC BOARD

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.5 Watt Surface Mount Silicon Zener Diode is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

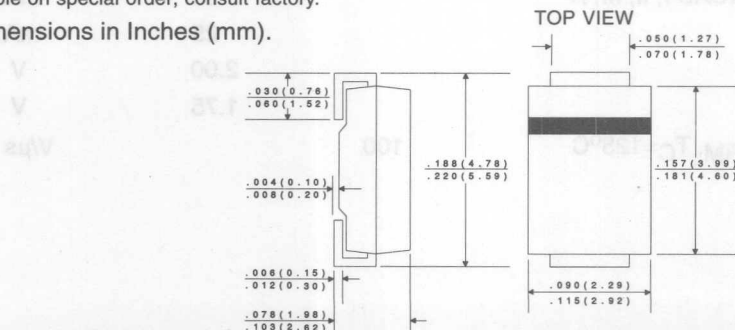
	SYMBOL		UNITS
Peak Forward Surge Current (8.3ms)	I_{FSM}	20	A
Power Dissipation ($T_L=75^\circ\text{C}$)	P_D	1.5	W
Power Dissipation	P_D	0.9	W
Peak Power Dissipation ($T_L<25^\circ\text{C}$)			
PW=10/1000 μs	P_{PK}	200	W
Peak Power Dissipation ($T_L<25^\circ\text{C}$)			
PW=8/20 μs	P_{PK}	1000	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JL}	50	$^\circ\text{C/W}$
Thermal Resistance	θ_{JA}	139	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$), $V_F=1.5\text{V MAX}$ @ $I_F=200\text{mA}$ FOR ALL TYPES.

TYPE NO.	ZENER VOLTAGE V _Z @I _{ZT}			TEST CURRENT I _{ZT}	MAXIMUM ZENER IMPEDENCE			MAXIMUM REVERSE CURRENT		MAXIMUM DC ZENER CURRENT I _{ZM}	MARKING CODE
	MIN	NOM	MAX			Z _{ZT} @I _{ZT}	Z _{ZK} @I _{ZK}	I _R @V _R			
	VOLTS	VOLTS	VOLTS	mA	Ω	Ω	mA	μA	VOLTS	mA	
CMZ5921B*	6.460	6.8	7.140	55.1	2.5	200	1.0	2.5	5.2	221	C5921B
CMZ5922B*	7.125	7.5	7.875	50.0	3.0	400	0.5	2.5	6.0	200	C5922B
CMZ5923B*	7.790	8.2	8.610	45.7	3.5	400	0.5	2.5	6.5	183	C5923B
CMZ5924B*	8.645	9.1	9.555	41.2	4.0	500	0.5	2.5	7.0	165	C5924B
CMZ5925B	9.500	10	10.50	37.5	4.5	500	0.25	2.5	8.0	150	C5925B
CMZ5926B	10.45	11	11.55	34.1	5.5	550	0.25	0.5	8.4	136	C5926B
CMZ5927B	11.40	12	12.60	31.2	6.5	550	0.25	0.5	9.1	125	C5927B
CMZ5928B	12.35	13	13.65	28.8	7.0	550	0.25	0.5	9.9	115	C5928B
CMZ5929B	14.25	15	15.75	25.0	9.0	600	0.25	0.5	11.4	100	C5929B
CMZ5930B	15.20	16	16.80	23.4	10	600	0.25	0.5	12.2	94	C5930B
CMZ5931B	17.10	18	18.90	20.8	12	650	0.25	0.5	13.7	83	C5931B
CMZ5932B	19.00	20	21.00	18.7	14	650	0.25	0.5	15.2	75	C5932B
CMZ5933B	20.90	22	23.10	17.0	17.5	650	0.25	0.5	16.7	68	C5933B
CMZ5934B	22.80	24	25.20	15.6	19	700	0.25	0.5	18.2	63	C5934B
CMZ5935B	25.65	27	28.35	13.9	23	700	0.25	0.5	20.6	56	C5935B
CMZ5936B	28.50	30	31.50	12.5	26	750	0.25	0.5	22.8	50	C5936B
CMZ5937B	31.35	33	34.65	11.4	33	800	0.25	0.5	25.1	45	C5937B
CMZ5938B	34.20	36	37.80	10.4	38	850	0.25	0.5	27.4	42	C5938B
CMZ5939B	37.05	39	40.95	9.6	45	900	0.25	0.5	29.7	38	C5939B
CMZ5940B	40.85	43	45.15	8.7	53	950	0.25	0.5	32.7	35	C5940B
CMZ5941B	44.65	47	49.35	8.0	67	1000	0.25	0.5	35.8	32	C5941B
CMZ5942B	48.45	51	53.55	7.3	70	1100	0.25	0.5	38.8	29	C5942B
CMZ5943B	53.20	56	58.80	6.7	86	1300	0.25	0.5	42.6	27	C5943B
CMZ5944B	58.90	62	65.10	6.0	100	1500	0.25	0.5	47.1	24	C5944B
CMZ5945B	64.60	68	71.40	5.5	120	1700	0.25	0.5	51.7	22	C5945B
CMZ5946B	71.25	75	78.75	5.0	140	2000	0.25	0.5	56.0	20	C5946B
CMZ5947B	77.90	82	86.10	4.6	160	2500	0.25	0.5	62.2	18	C5947B
CMZ5948B	86.45	91	95.55	4.1	200	3000	0.25	0.5	69.2	16	C5948B
CMZ5949B	95.00	100	105.0	3.7	250	3100	0.25	0.5	76.0	15	C5949B
CMZ5950B	104.5	110	115.5	3.4	300	4000	0.25	0.5	83.6	13	C5950B
CMZ5951B	114.0	120	126.0	3.1	360	4500	0.25	0.5	91.2	12	C5951B
CMZ5952B	123.5	130	136.5	2.9	450	5000	0.25	0.5	98.8	11	C5952B
CMZ5953B	142.5	150	157.5	2.5	600	6000	0.25	0.5	114.0	10	C5953B
CMZ5954B	152.0	160	168.0	2.3	700	6500	0.25	0.5	121.6	9.0	C5954B
CMZ5955B	171.0	180	189.0	2.1	900	7000	0.25	0.5	136.8	8.0	C5955B
CMZ5956B	190.0	200	210.0	1.9	1200	8000	0.25	0.5	152.0	7.0	C5956B

* Available on special order; consult factory.

All Dimensions in Inches (mm).

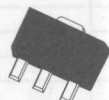


DATA
SHEET

R2

CQ89D
CQ89M
CQ89N

2.0 AMP TRIAC
400 THRU 800 VOLTS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQ89D series types are epoxy molded silicon triacs designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

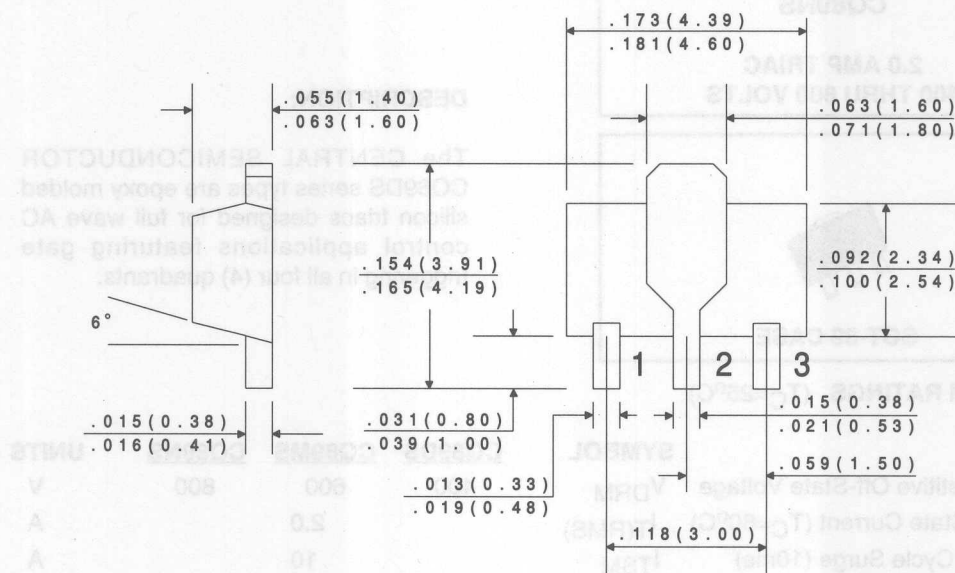
MAXIMUM RATINGS (T_C=25°C)

	SYMBOL	CQ89D	CQ89M	CQ89N	UNITS
Peak Repetitive Off-State Voltage	V _{DRM}	400	600	800	V
RMS On-State Current (T _C =80°C)	I _{T(RMS)}		2.0		A
Peak One Cycle Surge (10ms)	I _{TSM}		10		A
Peak Gate Current	I _{GM}		1.0		A
Average Gate Power Dissipation	P _{G(AV)}		0.1		W
Storage Temperature	T _{stg}		-45 to +150		°C
Junction Temperature	T _J		-45 to +125		°C
Thermal Resistance	Θ _{J-C}		10		°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{DRM}	V _D =Rated V _{DRM}			5.00	μA
I _{DRM}	V _D =Rated V _{DRM} , T _C =125°C			200	μA
I _{GT}	V _D =12V, QUAD I, II, III, IV			25	mA
I _H	V _D =12V			25	mA
V _{GT}	V _D =12V			2.00	V
V _{TM}	I _T =3.0A			1.75	V
dv/dt	V _D =2/3 V _{DRM} , T _C =125°C	100			V/μs

All dimensions in inches (mm).



LEAD CODE:

- 1) GATE
- 2) MT2
- 3) MT1

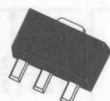
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{DRM}	$V_D = \text{Rated } V_{DRM}$			8.0	A
I_{DRM}	$V_D = \text{Rated } V_{DRM}, T_C = 125^\circ\text{C}$			200	A
I_{GT}	$V_D = 12V, \text{QUAD I, II, IV}$			2.0	mA
I_H	$V_D = 12V$			2.0	mA
V_{GT}	$V_D = 12V$			2.0	V
V_{TM}	$I_T = 3.0A$			1.75	V
$\rho_{DS(on)}$	$V_D = V_{DRM}, T_C = 125^\circ\text{C}$			30	mΩ

DATA
SHEET

R2

CQ89DS
CQ89MS
CQ89NS

2.0 AMP TRIAC
400 THRU 800 VOLTS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQ89DS series types are epoxy molded silicon triacs designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

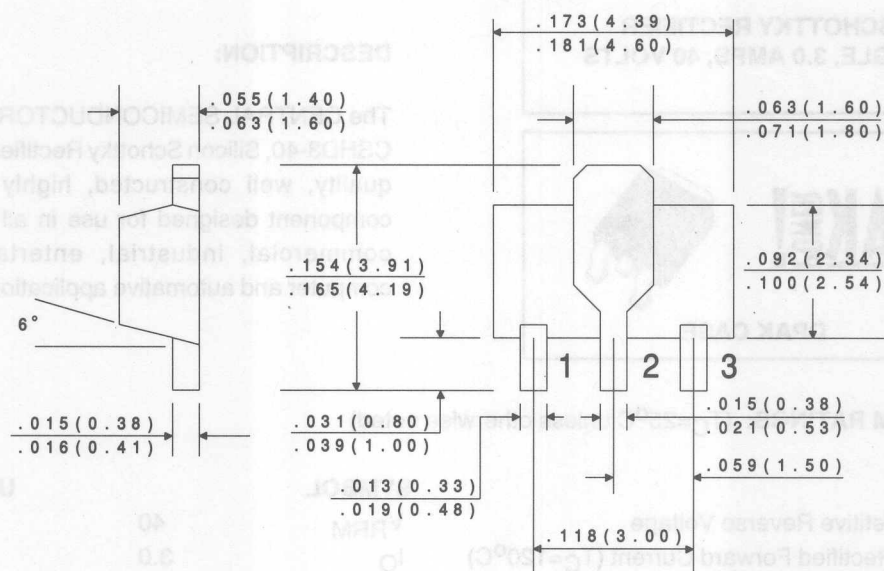
MAXIMUM RATINGS (T_C=25°C)

	SYMBOL	CQ89DS	CQ89MS	CQ89NS	UNITS
Peak Repetitive Off-State Voltage	V _{DRM}	400	600	800	V
RMS On-State Current (T _C =80°C)	I _{T(RMS)}		2.0		A
Peak One Cycle Surge (10ms)	I _{TSM}		10		A
Peak Gate Current	I _{GM}		1.0		A
Average Gate Power Dissipation	P _{G(AV)}		0.1		W
Storage Temperature	T _{stg}		-45 to +150		°C
Junction Temperature	T _J		-45 to +125		°C
Thermal Resistance	θ _{J-C}		10		°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{DRM}	V _D =Rated V _{DRM}			5.0	μA
I _{DRM}	V _D =Rated V _{DRM} , T _C =125°C			200	μA
I _{GT}	V _D =12V, QUAD I, II, III, IV			5.0	mA
I _H	V _D =12V			5.0	mA
V _{GT}	V _D =12V			2.0	V
V _{TM}	I _T =3.0A			1.75	V
dv/dt	V _D =2/3 V _{DRM} , T _C =125°C	30			V/μs

All dimensions in inches (mm).



LEAD CODE:

- 1) GATE
- 2) MT2
- 3) MT1

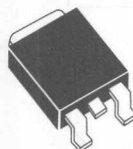
DATA
SHEET

R1

CSHD3-40

SCHOTTKY RECTIFIER
SINGLE, 3.0 AMPS, 40 VOLTS

DPAK
POWER!



DPAK CASE

Central Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD3-40, Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer and automotive applications.

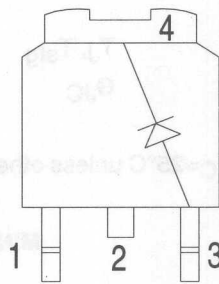
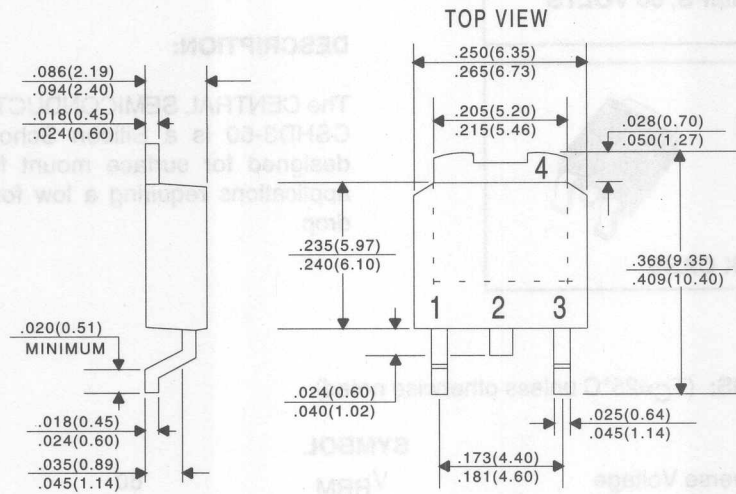
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
Average Rectified Forward Current ($T_C=120^\circ\text{C}$)	I_O	3.0	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	75	A
Peak Repetitive Reverse Surge Current ($t_p=2\ \mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	5.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=40\text{V}$		100	μA
I_R	$V_R=40\text{V}, T_C=125^\circ\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.65	V
V_F	$I_F=3.0\text{A}, T_C=125^\circ\text{C}$		0.60	V

All dimensions in inches (mm).



LEAD CODE:

- 1) NO CONNECTION
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

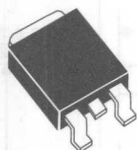
R5

DATA
SHEET

CSHD3-60

**SCHOTTKY RECTIFIER
SINGLE, 3.0 AMPS, 60 VOLTS**

DPAK **POWER!**



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD3-60 is a Silicon Schottky Rectifier designed for surface mount fast switching applications requiring a low forward voltage drop.

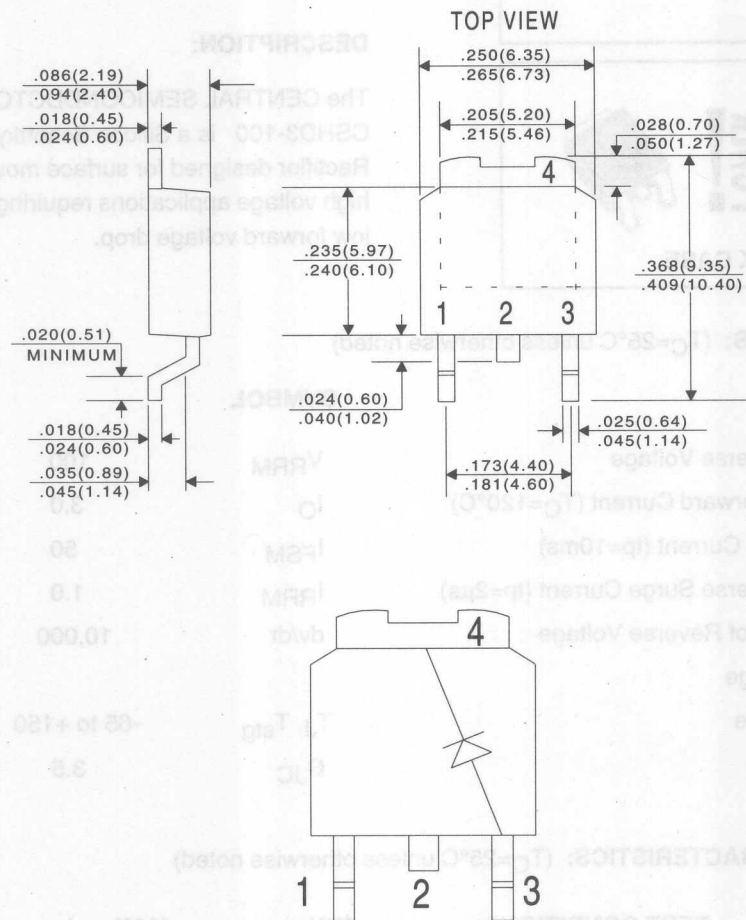
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	60	V
Average Rectified Forward Current ($T_C=120^\circ\text{C}$)	I_O	3.0	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	50	A
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	3.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=60\text{V}$		30	μA
I_R	$V_R=60\text{V}, T_C=125^\circ\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.75	V
V_F	$I_F=3.0\text{A}, T_C=125^\circ\text{C}$		0.70	V

All dimensions in inches (mm).



LEAD CODE:

- 1) NO CONNECTION
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

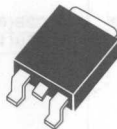
DATA
SHEET

R4



SCHOTTKY RECTIFIER
SINGLE, 3.0 AMPS, 100 VOLTS
HIGH VOLTAGE

DPAK **POWER!**



DPAK CASE

Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD3-100 is a Silicon Schottky Rectifier designed for surface mount high voltage applications requiring a low forward voltage drop.

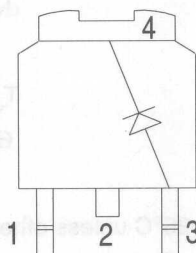
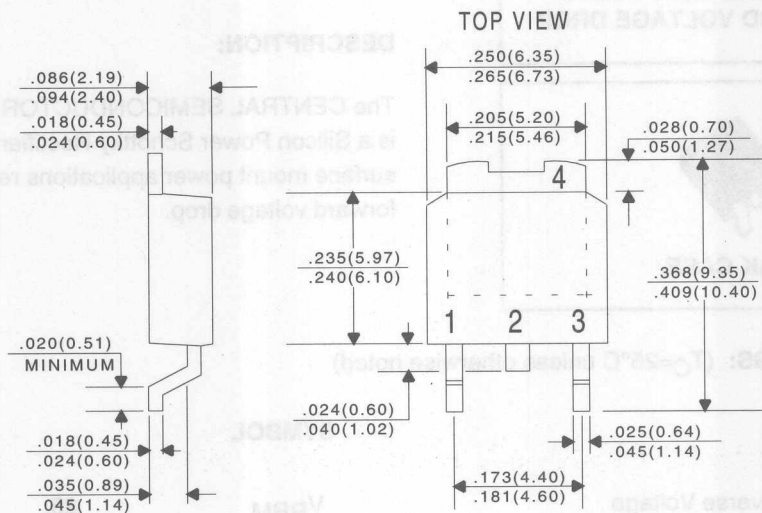
MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Average Rectified Forward Current ($T_C=120^{\circ}\text{C}$)	I_O	3.0	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	50	A
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JC}	3.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=100\text{V}$		30	mA
I_R	$V_R=100\text{V}, T_C=125^{\circ}\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.85	V
V_F	$I_F=3.0\text{A}, T_C=125^{\circ}\text{C}$		0.80	V

All Dimensions in inches (mm).



Lead Code:

- 1) No Connection
- 2) Cathode
- 3) Anode
- 4) Cathode

Pin 2 is common to the tab (4).

DATA
SHEET

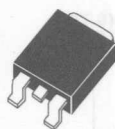
R1



CSHD5-25L

SCHOTTKY RECTIFIER
SINGLE, 5.0 AMPS, 25 VOLTS
LOW FORWARD VOLTAGE DROP

LOW
V_F



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD5-25L is a Silicon Power Schottky Rectifier designed for surface mount power applications requiring a low forward voltage drop.

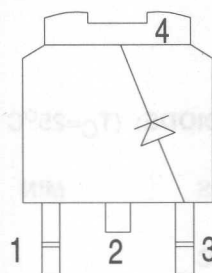
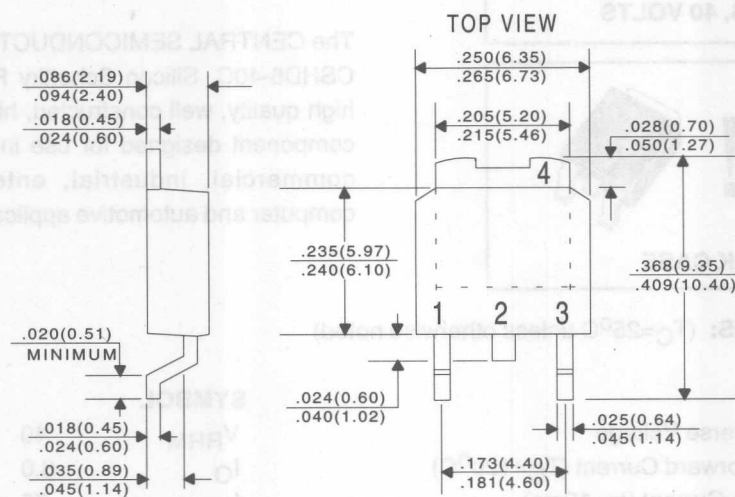
MAXIMUM RATINGS: (T_C=25°C unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	25	V
Average Rectified Forward Current (T _C =120°C)	I _O	5.0	A
Peak Forward Surge Current (tp=10ms)	I _{FSM}	80	A
Peak Repetitive Reverse Surge Current (tp=2μs)	I _{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/μs
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JC}	2.5	°C/W

ELECTRICAL CHARACTERISTICS: (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I _R	V _R =25V			500	μA
I _R	V _R =25V, T _C =125°C			200	mA
V _F	I _F =5.0A			0.47	V
V _F	I _F =5.0A, T _C =125°C			0.35	V

All Dimensions in Inches (mm).



Lead Code:

- 1) No Connection
- 2) Cathode
- 3) Anode
- 4) Cathode

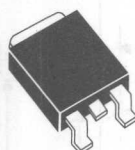
Pin 2 is common to the tab (4).

R1

CSHD6-40C

SCHOTTKY RECTIFIER
DUAL, COMMON CATHODE
6.0 AMPS, 40 VOLTS

DPAK POWER!



DPAK CASE

Central™
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD6-40C, Silicon Schottky Rectifier is a high quality, well constructed, highly reliable component designed for use in all types of commercial, industrial, entertainment, computer and automotive applications.

MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

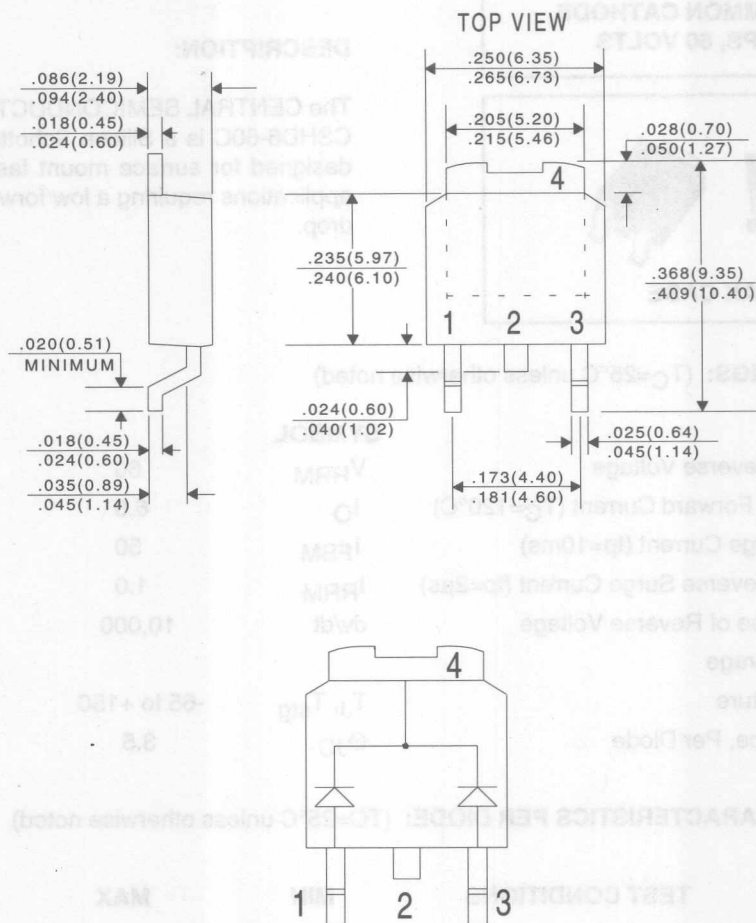
Peak Repetitive Reverse Voltage
Average Rectified Forward Current ($T_C=120^{\circ}\text{C}$)
Peak Forward Surge Current ($t_p=10\text{ms}$)
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)
Critical Rate of Rise of Reverse Voltage
Operating and Storage
Junction Temperature
Thermal Resistance, Per Diode

SYMBOL		UNITS
V_{RRM}	40	V
I_O	6.0	A
I_{FSM}	75	A
I_{RRM}	1.0	A
dv/dt	10,000	V/ μs
T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
θ_{JC}	5.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=40\text{V}$		100	μA
I_R	$V_R=40\text{V}, T_C=125^{\circ}\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.65	V
V_F	$I_F=3.0\text{A}, T_C=125^{\circ}\text{C}$		0.60	V
V_F	$I_F=6.0\text{A}$		0.85	V
V_F	$I_F=6.0\text{A}, T_C=125^{\circ}\text{C}$		0.80	V

All dimensions in inches (mm).



LEAD CODE:

- 1) ANODE #1
- 2) CATHODE
- 3) ANODE #2
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

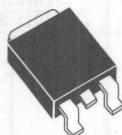
DATA
SHEET

R6

CSHD6-60C

**SCHOTTKY RECTIFIER
DUAL, COMMON CATHODE
6.0 AMPS, 60 VOLTS**

DPAK
POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD6-60C is a Silicon Schottky Rectifier designed for surface mount fast switching applications requiring a low forward voltage drop.

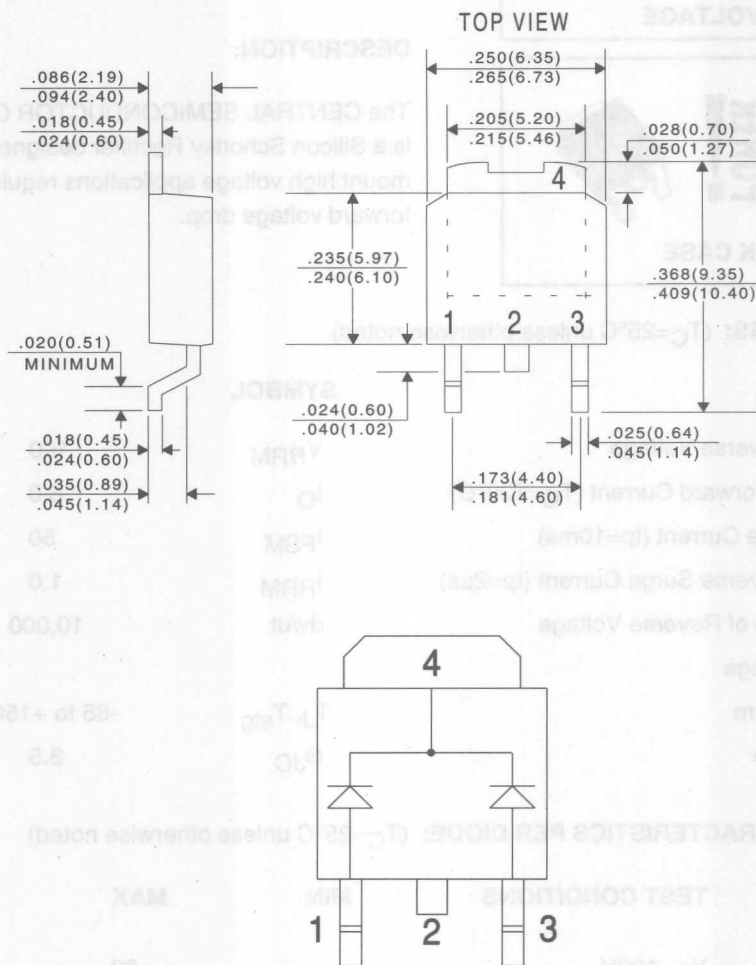
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	60	V
Average Rectified Forward Current ($T_C=120^\circ\text{C}$)	I_O	6.0	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	50	A
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance, Per Diode	Θ_{JC}	3.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=60\text{V}$		30	μA
I_R	$V_R=60\text{V}, T_C=125^\circ\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.70	V
V_F	$I_F=3.0\text{A}, T_C=125^\circ\text{C}$		0.65	V
V_F	$I_F=6.0\text{A}$		0.90	V
V_F	$I_F=6.0\text{A}, T_C=125^\circ\text{C}$		0.85	V

All dimensions in inches (mm).



LEAD CODE:

- 1) ANODE #1
- 2) CATHODE
- 3) ANODE #2
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

DATA
SHEET

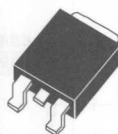
R5



CSHD6-100C

SCHOTTKY RECTIFIER
DUAL, COMMON CATHODE
6.0 AMPS, 100 VOLTS
HIGH VOLTAGE

DPAK POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD6-100C is a Silicon Schottky Rectifier designed for surface mount high voltage applications requiring a low forward voltage drop.

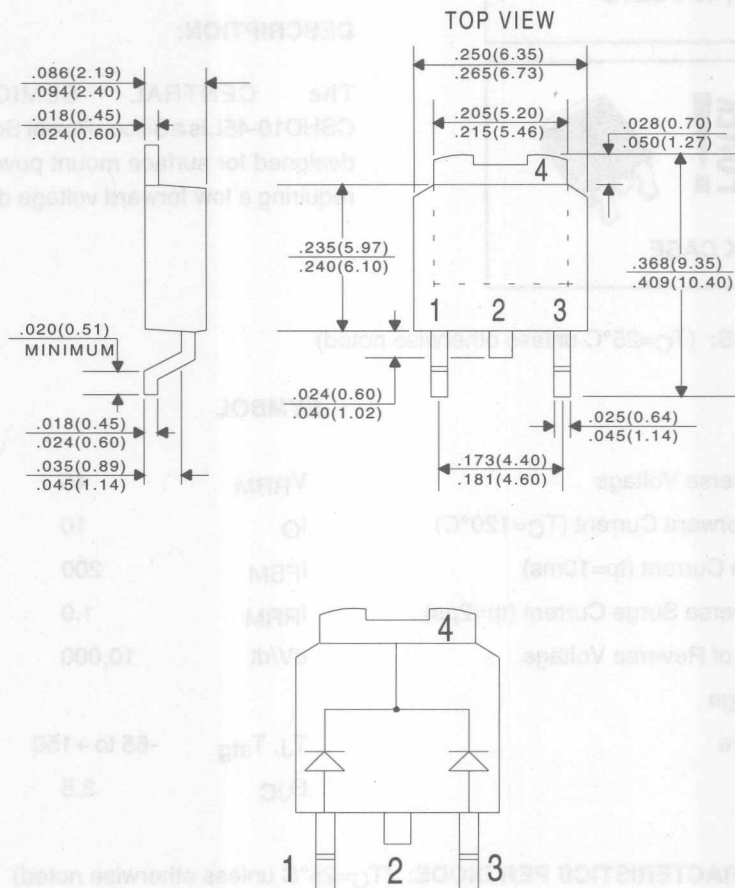
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	100	V
Average Rectified Forward Current ($T_C=120^\circ\text{C}$)	I_O	6.0	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	50	A
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JC}	3.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=100\text{V}$		30	μA
I_R	$V_R=100\text{V}, T_C=125^\circ\text{C}$		10	mA
V_F	$I_F=3.0\text{A}$		0.75	V
V_F	$I_F=3.0\text{A}, T_C=125^\circ\text{C}$		0.70	V
V_F	$I_F=6.0\text{A}$		1.10	V
V_F	$I_F=6.0\text{A}, T_C=125^\circ\text{C}$		1.05	V

All Dimensions in Inches (mm).



DATA
SHEET

Lead Code:

- 1) Anode #1
- 2) Cathode
- 3) Anode #2
- 4) Cathode

Pin 2 is common to the tab (4).

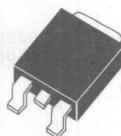
R2



CSHD10-45L

POWER SCHOTTKY RECTIFIER
10 AMPS, 45 VOLTS

DPAK POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHD10-45L is a Silicon Power Schottky Rectifier designed for surface mount power applications requiring a low forward voltage drop.

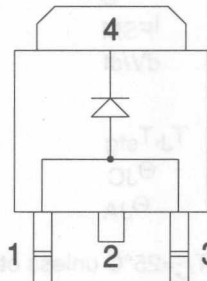
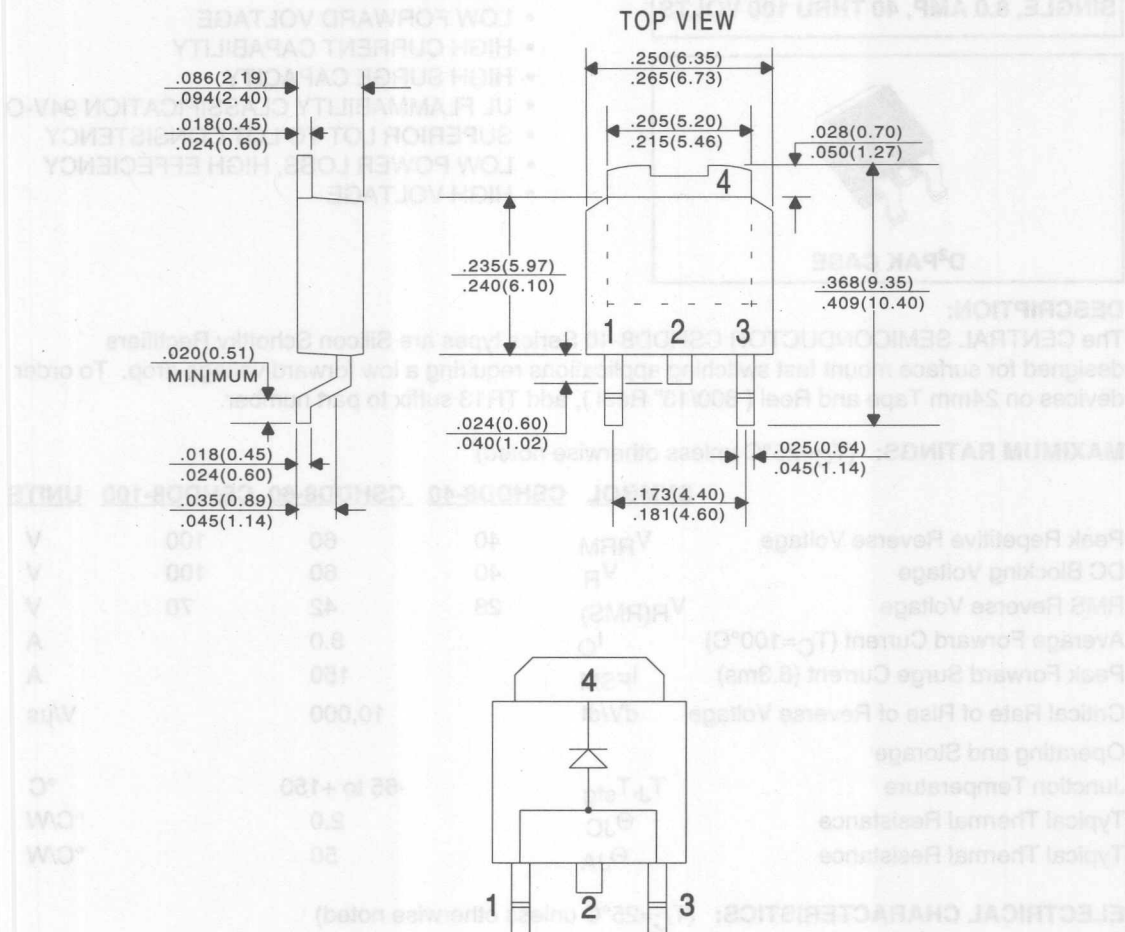
MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	45	V
Average Rectified Forward Current ($T_C=120^{\circ}\text{C}$)	I_O	10	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	200	A
Peak Repetitive Reverse Surge Current ($t_p=2\mu\text{s}$)	I_{RRM}	1.0	A
Critical Rate of Rise of Reverse Voltage	dV/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JC}	3.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_R	$V_R=45\text{V}$		40	100	μA
I_R	$V_R=45\text{V}, T_C=125^{\circ}\text{C}$			15	mA
V_F	$I_F=10\text{A}$		0.575	0.75	V
V_F	$I_F=10\text{A}, T_C=125^{\circ}\text{C}$			0.55	V

All Dimensions in Inches (mm).



LEAD CODE:

- 1) ANODE
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

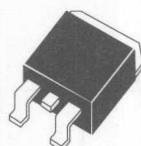
DATA
SHEET

R3



CSHDD8-40
CSHDD8-60
CSHDD8-100

SILICON SCHOTTKY RECTIFIERS
SINGLE, 8.0 AMP, 40 THRU 100 VOLTS



D²PAK CASE

CentralTM
Semiconductor Corp.

FEATURES:

- HIGH RELIABILITY
- LOW FORWARD VOLTAGE
- HIGH CURRENT CAPABILITY
- HIGH SURGE CAPACITY
- UL FLAMMABILITY CLASSIFICATION 94V-0
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW POWER LOSS, HIGH EFFECIENCY
- HIGH VOLTAGE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHDD8-40 Series types are Silicon Schottky Rectifiers designed for surface mount fast switching applications requiring a low forward voltage drop. To order devices on 24mm Tape and Reel (800/13" Reel), add TR13 suffix to part number.

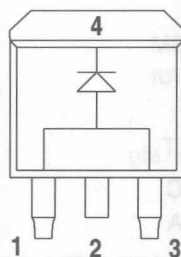
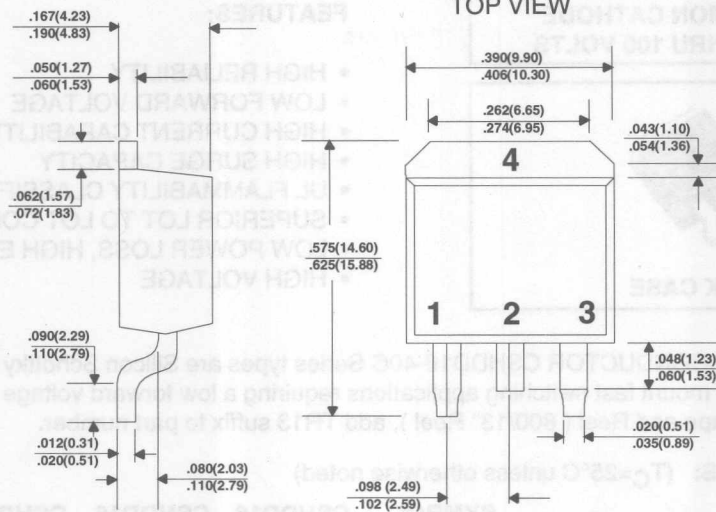
MAXIMUM RATINGS: (T_C=25°C unless otherwise noted)

	SYMBOL	CSHDD8-40	CSHDD8-60	CSHDD8-100	UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	40	60	100	V
DC Blocking Voltage	V _R	40	60	100	V
RMS Reverse Voltage	V _{R(RMS)}	28	42	70	V
Average Forward Current (T _C =100°C)	I _O		8.0		A
Peak Forward Surge Current (8.3ms)	I _{FSM}		150		A
Critical Rate of Rise of Reverse Voltage	dV/dt		10,000		V/μs
Operating and Storage					
Junction Temperature	T _J , T _{stg}		-65 to +150		°C
Typical Thermal Resistance	θ _{JC}		2.0		°C/W
Typical Thermal Resistance	θ _{JA}		50		°C/W

ELECTRICAL CHARACTERISTICS: (T_C=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CSHDD8-40		CSHDD8-60		CSHDD8-100		UNITS
		TYP	MAX	TYP	MAX	TYP	MAX	
I _R	V _R =Rated V _{RRM}		100		100		100	μA
I _R	V _R =Rated V _{RRM} , T _C = 125°C		15		15		15	mA
V _F	I _F =8.0A		0.65		0.75		0.85	V
V _F	I _F =8.0A, T _C = 125°C		0.57		0.65		0.75	V
V _F	I _F =16A		0.84		0.95		1.10	V
V _F	I _F =16A, T _C = 125°C		0.72		0.85		1.00	V
C _J	V _R =4.0V, f=1.0MHz	300		300		300		pF

All Dimensions in Inches (mm).



LEAD CODE:
1) ANODE
2) CATHODE
3) ANODE
4) CATHODE

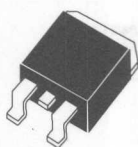
PIN 2 IS COMMON TO THE TAB(4)

DATA
SHEET



CSHDD16-40C
CSHDD16-60C
CSHDD16-100C

SILICON SCHOTTKY RECTIFIERS
DUAL, COMMON CATHODE
16 AMP, 40 THRU 100 VOLTS



D²PAK CASE

CentralTM
Semiconductor Corp.

FEATURES:

- HIGH RELIABILITY
- LOW FORWARD VOLTAGE
- HIGH CURRENT CAPABILITY
- HIGH SURGE CAPACITY
- UL FLAMMABILITY CLASSIFICATION 94V-0
- SUPERIOR LOT TO LOT CONSISTENCY
- LOW POWER LOSS, HIGH EFFECIENCY
- HIGH VOLTAGE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CSHDD16-40C Series types are Silicon Schottky Rectifiers designed for surface mount fast switching applications requiring a low forward voltage drop. To order devices on 24mm Tape and Reel (800/13" Reel), add TR13 suffix to part number.

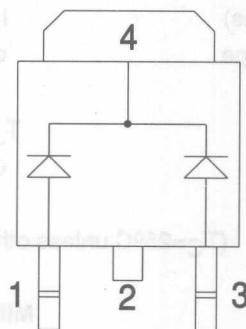
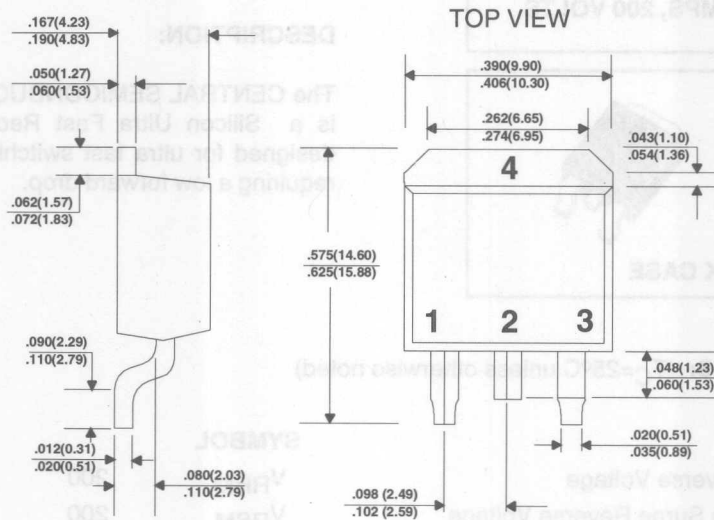
MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	CSHDD16 -40C	CSHDD16 -60C	CSHDD16 -100C	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	40	60	100	V
DC Blocking Voltage	V_R	40	60	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	26	42	80	V
Average Forward Current ($T_C=90^{\circ}\text{C}$)	I_O		16		A
Peak Forward Surge Current (8.3ms)	I_{FSM}		150		A
Critical Rate of Rise of Reverse Voltage	dV/dt		10,000		V/ μs
Operating and Storage					
Junction Temperature	T_J, T_{stg}		-65 to +150		$^{\circ}\text{C}$
Typical Thermal Resistance	Θ_{JC}		2.0		$^{\circ}\text{C/W}$
Typical Thermal Resistance	Θ_{JA}		50		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CSHDD16 -40C		CSHDD16 -60C		CSHDD16 -100		UNITS
		TYP	MAX	TYP	MAX	TYP	MAX	
I_R	$V_R=\text{Rated } V_{RRM}$		100		100		100	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_C=125^{\circ}\text{C}$		15		15		15	mA
V_F	$I_F=8.0\text{A}$		0.65		0.75		0.85	V
V_F	$I_F=8.0\text{A}, T_C=125^{\circ}\text{C}$		0.57		0.65		0.75	V
V_F	$I_F=16\text{A}$		0.84		0.95		1.10	V
V_F	$I_F=16\text{A}, T_C=125^{\circ}\text{C}$		0.72		0.85		1.00	V
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$	300		300		300		pF

All Dimensions in Inches (mm).



LEAD CODE:

- 1) ANODE#1
- 2) CATHODE
- 3) ANODE #2
- 4) CATHODE

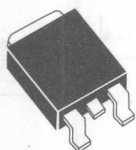
PIN 2 IS COMMON TO THE TAB(4)

DATA
SHEET

CUD3-02

ULTRA FAST RECOVERY RECTIFIER
SINGLE, 4.0 AMPS, 200 VOLTS

DPAK
POWER!



DPAK CASE

CentralTM
semiconductor corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CUD3-02 is a Silicon Ultra Fast Recovery Rectifier designed for ultra fast switching applications requiring a low forward drop.

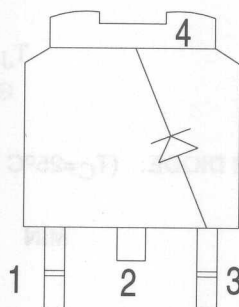
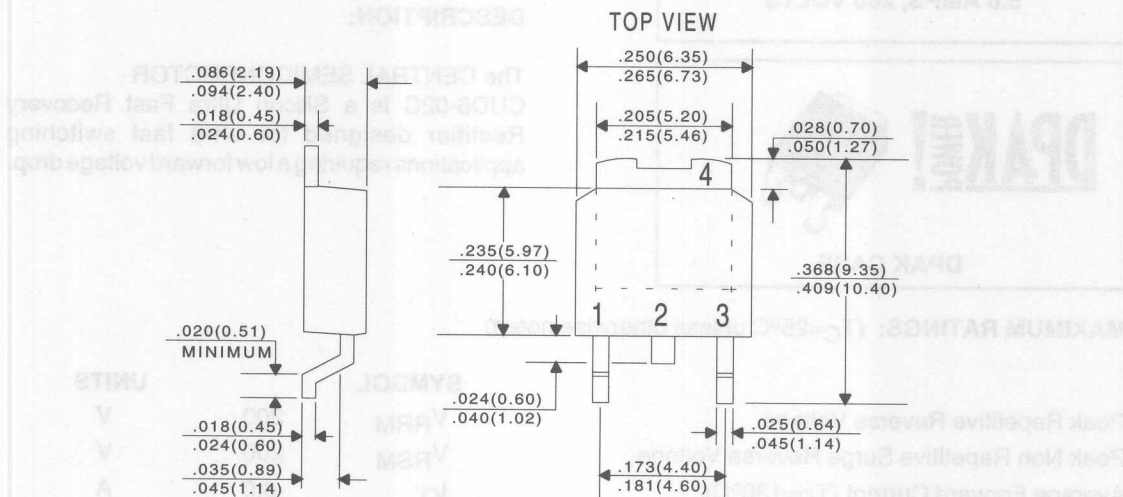
MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	V
Peak Non Repetitive Surge Reverse Voltage	V_{RSM}	200	V
Average Rectified Forward Current ($T_C=130^{\circ}\text{C}$)	I_O	4.0	A
RMS Forward Current	$I_F(\text{RMS})$	10	A
Peak Forward Surge Current ($t_p=10\text{ms}$)	I_{FSM}	70	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JC}	5.0	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=200\text{V}$		20	μA
I_R	$V_R=200\text{V}, T_C=100^{\circ}\text{C}$		500	μA
V_F	$I_F=12\text{A}$		1.25	V
V_F	$I_F=4.0\text{A}, T_C=100^{\circ}\text{C}$		0.85	V
t_{rr}	$V_R=30\text{V}, I_F=1.0\text{A}, di/dt=50\text{A/ms}$		35	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) NO CONNECTION
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

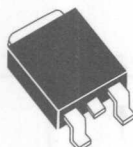
DATA
SHEET

R4

CUD6-02C

**ULTRA FAST RECOVERY RECTIFIER
DUAL, COMMON CATHODE
5.0 AMPS, 200 VOLTS**

DPAK
POWER!



DPAK CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CUD6-02C is a Silicon Ultra Fast Recovery Rectifier designed for ultra fast switching applications requiring a low forward voltage drop.

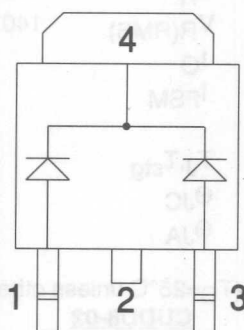
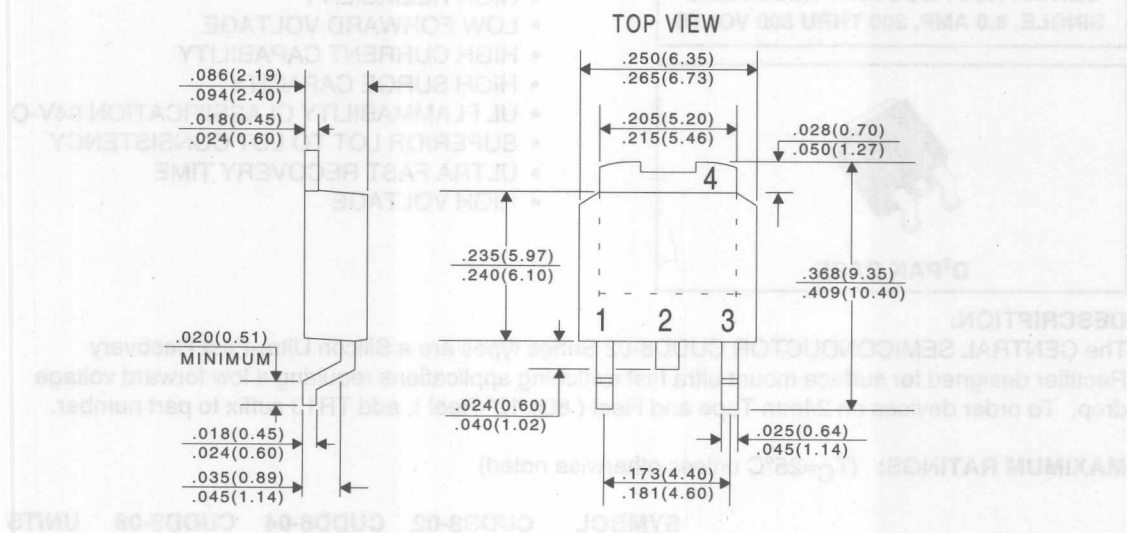
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	V
Peak Non Repetitive Surge Reverse Voltage	V_{RSM}	200	V
Average Forward Current ($T_C=130^\circ\text{C}$)	I_O	6.0	A
RMS Forward Current Per Diode	$I_F(\text{RMS})$	10	A
Peak Forward Surge Current Per Diode ($t_p=10\text{ms}$)	I_{FSM}	70	A
Critical Rate of Rise of Reverse Voltage	dv/dt	10,000	V/ μs
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance, Per Diode	θ_{JC}	5.0	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_R	$V_R=200\text{V}$		20	μA
I_R	$V_R=200\text{V}, T_C=100^\circ\text{C}$		500	μA
V_F	$I_F=10\text{A}$		1.25	V
V_F	$I_F=5.0\text{A}, T_C=100^\circ\text{C}$		0.85	V
t_{rr}	$V_R=30\text{V}, I_F=1.0\text{A}, di/dt=50\text{A/ms}$		35	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) ANODE 1
- 2) CATHODE
- 3) ANODE 2
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB (4).

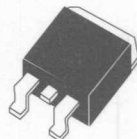
DATA
SHEET

R4



CUDD8-02
CUDD8-04
CUDD8-08

ULTRA FAST RECOVERY RECTIFIERS
SINGLE, 8.0 AMP, 200 THRU 800 VOLTS



D²PAK CASE

CentralTM
Semiconductor Corp.

FEATURES:

- HIGH RELIABILITY
- LOW FORWARD VOLTAGE
- HIGH CURRENT CAPABILITY
- HIGH SURGE CAPACITY
- UL FLAMMABILITY CLASSIFICATION 94V-0
- SUPERIOR LOT TO LOT CONSISTENCY
- ULTRA FAST RECOVERY TIME
- HIGH VOLTAGE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CUDD8-02 Series types are a Silicon Ultra-Fast Recovery Rectifier designed for surface mount ultra fast switching applications requiring a low forward voltage drop. To order devices on 24mm Tape and Reel (800/13" Reel), add TR13 suffix to part number.

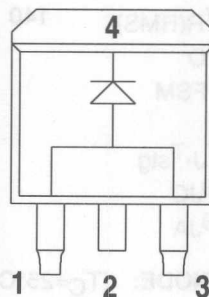
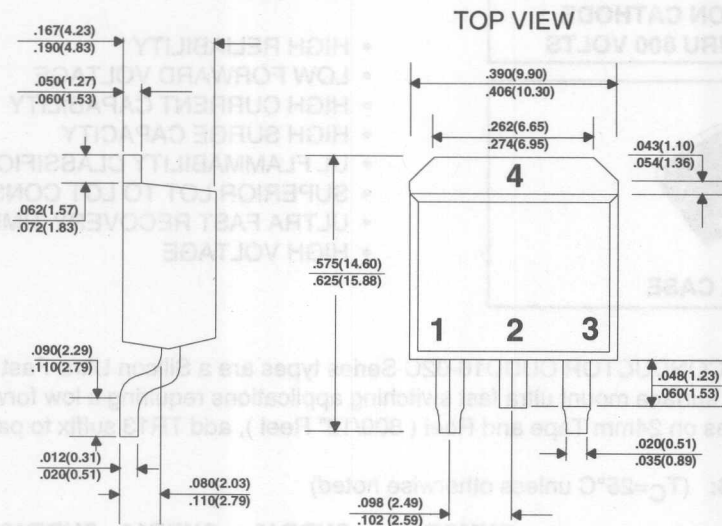
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CUDD8-02	CUDD8-04	CUDD8-08	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	800	V
DC Blocking Voltage	V_R	200	400	800	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	560	V
Average Forward Current ($T_C=100^\circ\text{C}$)	I_O		8.0		A
Peak Forward Surge Current (8.3ms)	I_{FSM}		125		A
Operating and Storage					
Junction Temperature	T_J, T_{stg}		-65 to +150		$^\circ\text{C}$
Typical Thermal Resistance	θ_{JC}		3.0		$^\circ\text{C/W}$
Typical Thermal Resistance	θ_{JA}		50		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CUDD8-02		CUDD8-04		CUDD8-08		UNITS
		TYP	MAX	TYP	MAX	TYP	MAX	
I_R	$V_R=\text{Rated } V_{RRM}$		5.0		10		10	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_C=150^\circ\text{C}$		250		500		500	μA
V_F	$I_F=8.0\text{A}$		0.975		1.3		1.5	V
V_F	$I_F=8.0\text{A}, T_C=150^\circ\text{C}$		0.895		1.1		1.2	V
t_{rr}	$I_F=0.5\text{A}, I_R=1.0\text{A}, I_{RR}=0.25\text{A}$		25		25		50	ns
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$	80		80		50		pF

All Dimensions in Inches (mm).



LEAD CODE:

- 1) ANODE
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

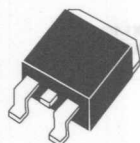
PIN 2 IS COMMON TO THE TAB(4)

DATA
SHEET



CUDD16-02C
CUDD16-04C
CUDD16-08C

ULTRA FAST RECOVERY RECTIFIERS
DUAL, COMMON CATHODE
16 AMP, 200 THRU 800 VOLTS



D²PAK CASE

CentralTM
Semiconductor Corp.

FEATURES:

- HIGH RELIABILITY
- LOW FORWARD VOLTAGE
- HIGH CURRENT CAPABILITY
- HIGH SURGE CAPACITY
- UL FLAMMABILITY CLASSIFICATION 94V-0
- SUPERIOR LOT TO LOT CONSISTENCY
- ULTRA FAST RECOVERY TIME
- HIGH VOLTAGE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CUDD16-02C Series types are a Silicon Ultra-Fast Recovery Rectifier designed for surface mount ultra fast switching applications requiring a low forward voltage drop. To order devices on 24mm Tape and Reel (800/13" Reel), add TR13 suffix to part number.

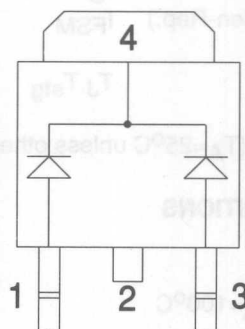
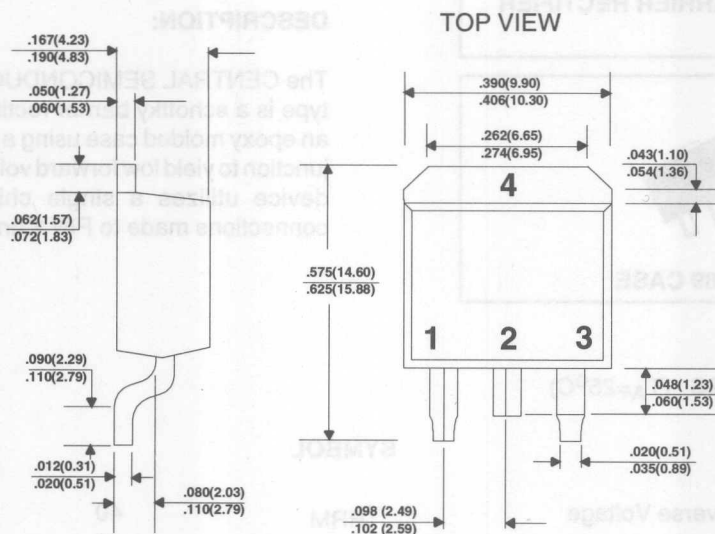
MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	CUDD16 -02C	CUDD16 -04C	CUDD16 -08C	UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	200	400	800	V
DC Blocking Voltage	V_R	200	400	800	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	280	560	V
Average Forward Current ($T_C=100^\circ\text{C}$)	I_O		16		A
Peak Forward Surge Current (8.3ms)	I_{FSM}		125		A
Operating and Storage Junction Temperature	T_J, T_{stg}		-50 to +150		$^\circ\text{C}$
Typical Thermal Resistance	θ_{JC}		3.0		$^\circ\text{C/W}$
Typical Thermal Resistance	θ_{JA}		50		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CUDD16-02C		CUDD16-04C		CUDD16-08C		UNITS
		TYP	MAX	TYP	MAX	TYP	MAX	
I_R	$V_R=\text{Rated } V_{RRM}$		5.0		10		10	μA
I_R	$V_R=\text{Rated } V_{RRM}, T_C=150^\circ\text{C}$		250		500		500	μA
V_F	$I_F=8.0\text{A}$		0.975		1.3		1.5	V
V_F	$I_F=8.0\text{A}, T_C=150^\circ\text{C}$		0.895		1.1		1.2	V
t_{rr}	$I_F=0.5\text{A}, I_R=1.0\text{A}, I_{RR}=0.25\text{A}$		25		25		50	ns
C_J	$V_R=4.0\text{V}, f=1.0\text{MHz}$		80		80		50	pF

All Dimensions in Inches (mm).



LEAD CODE:

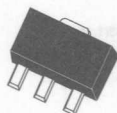
- 1) ANODE#1
- 2) CATHODE
- 3) ANODE #2
- 4) CATHODE

PIN 2 IS COMMON TO THE TAB(4)

DATA SHEET

CXSH-4

SCHOTTKY BARRIER RECTIFIER



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXSH-4 type is a schottky barrier rectifier mounted in an epoxy molded case using a metal to silicon junction to yield low forward voltage drop. This device utilizes a single chip with anode connections made to PIN 1 and PIN 3.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
DC Blocking Voltage	V_R	40	V
RMS Reverse Voltage	$V_R(\text{RMS})$	28	V
Average Forward Current	I_O	1.0	A
Peak Forward Surge Current(8.3ms, Non-Rep.)	I_{FSM}	10	A
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

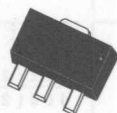
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=40\text{V}$		1.0	mA
I_R	$V_R=40\text{V}, T_A=100^{\circ}\text{C}$		10	mA
V_F	$I_F=1.0\text{A}$		0.55	V

25
20
15

B2

CXT2222A

NPN SILICON TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

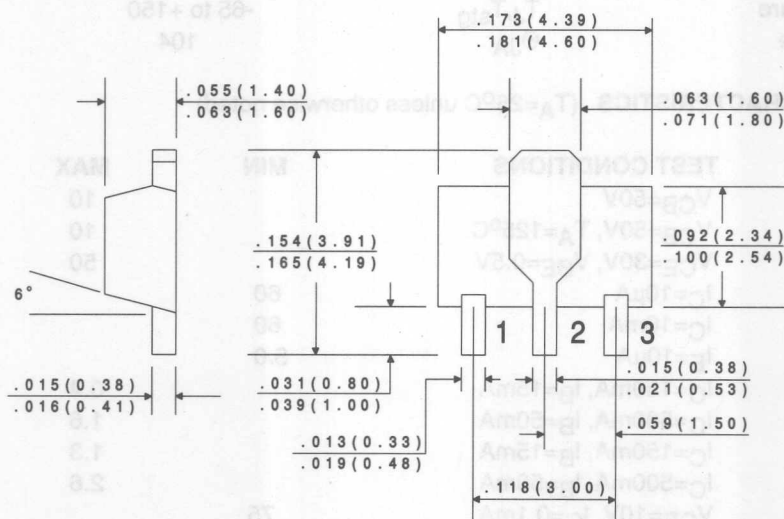
	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	1.2	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	104	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$		10	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{EBO}	$V_{EB}=3.0\text{V}$		10	nA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	75		V
BV_{CEO}	$I_C=10\text{mA}$	40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=1.0V, I_C=150mA$	50		
h_{FE}	$V_{CE}=10V, I_C=500mA$	40		
f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	300		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		25	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	k Ω
h_{ie}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$		8.0	$\times 10^{-4}$
h_{re}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$		4.0	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	
h_{fe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	$\mu mhos$
h_{oe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	$\mu mhos$
$rb'C_c$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$		150	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$		4.0	dB
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		25	ns
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	225		ns
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	60		ns

All dimensions in inches (mm).



LEAD CODE:

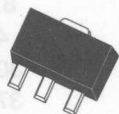
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA SHEET

R2

CXT2907A

PNP SILICON TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT2907A type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

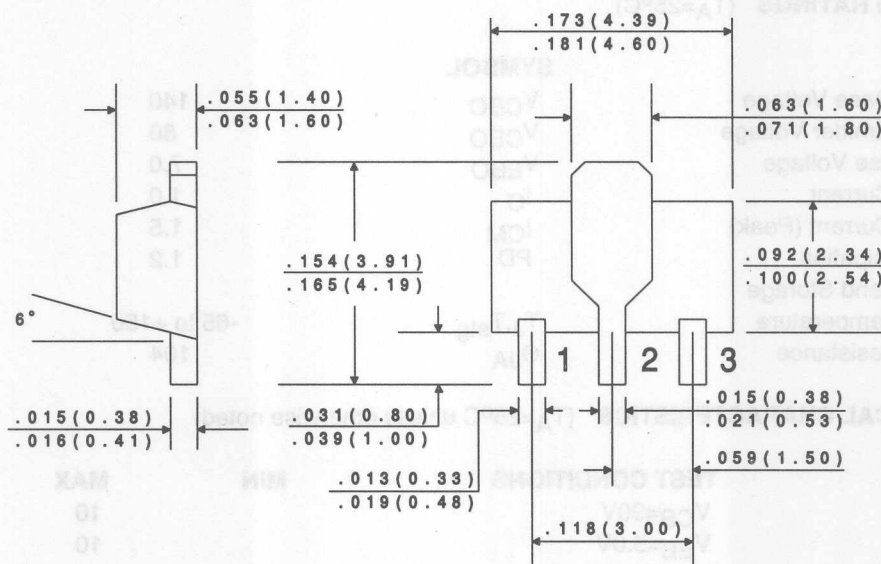
	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CE0}	60	V
Emitter-Base Voltage	V_{EB0}	5.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	1.2	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	Θ_{JA}	104	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=50\text{V}$		10	nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{CEV}	$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$		50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		V
BV_{CEO}	$I_C=10\text{mA}$	60		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	75		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	100		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=10V, I_C=500mA$	50		
f_T	$V_{CE}=20V, I_C=50mA, f=100MHz$	200		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{BE}=2.0V, I_C=0, f=1.0MHz$		30	pF
t_{on}	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		45	ns
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		40	ns
t_{off}	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		100	ns
t_s	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		80	ns
t_f	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		30	ns

All dimensions in inches (mm).



LEAD CODE:

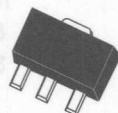
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CXT3019

NPN SILICON TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT3019 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current general purpose amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

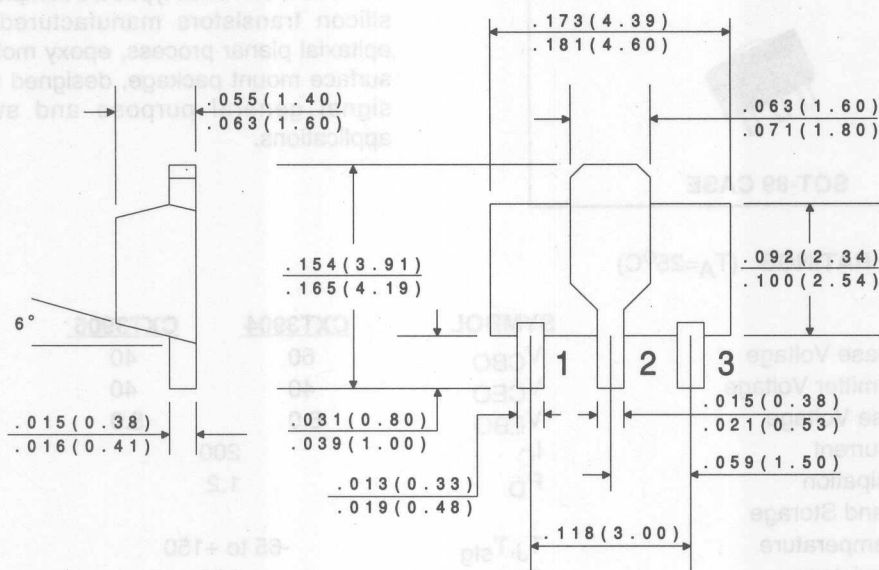
	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	140	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	7.0	V
Collector Current	I _C	1.0	A
Collector Current (Peak)	I _{CM}	1.5	A
Power Dissipation	PD	1.2	W
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	104	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =90V		10	nA
I _{EBO}	V _{EB} =5.0V		10	nA
BV _{CBO}	I _C =100μA	140		V
BV _{CEO}	I _C =30mA	80		V
BV _{EBO}	I _E =100μA	7.0		V
V _{CE} (SAT)	I _C =150mA, I _B =15mA		0.2	V
V _{CE} (SAT)	I _C =500mA, I _B =50mA		0.5	V
V _{BE} (SAT)	I _C =150mA, I _B =15mA		1.1	V
h _{FE}	V _{CE} =10V, I _C =0.1mA	50		
h _{FE}	V _{CE} =10V, I _C =10mA	90		
h _{FE}	V _{CE} =10V, I _C =150mA	100	300	
h _{FE}	V _{CE} =10V, I _C =500mA	50		
h _{FE}	V _{CE} =10V, I _C =1.0A	15		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=10V, I_C=50mA, f=1.0MHz$	100		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		12	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		60	pF
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1k\Omega, f=1.0kHz$		4.0	dB

All dimensions in inches (mm).



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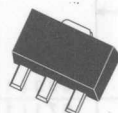
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CXT3904 NPN
CXT3906 PNP

COMPLEMENTARY
SILICON TRANSISTORS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CXT3904, CXT3906 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

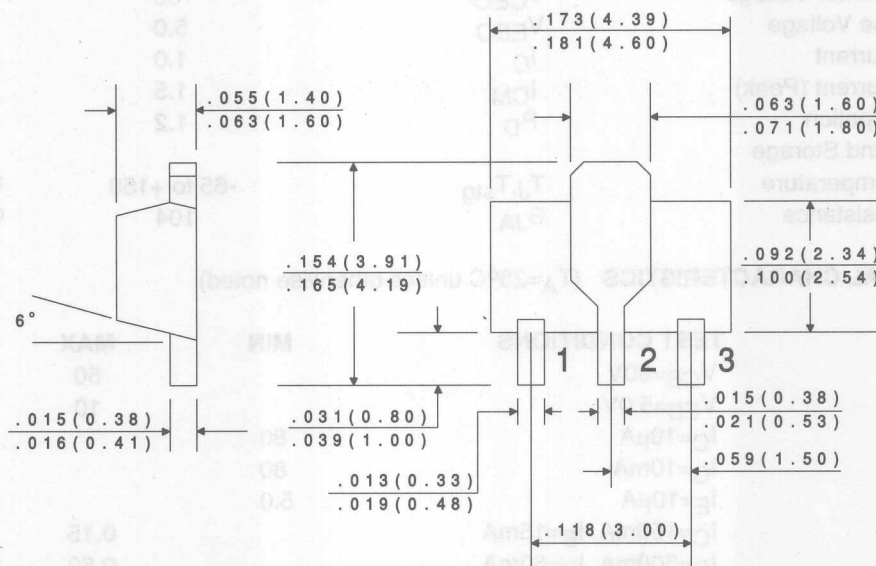
	SYMBOL	CXT3904	CXT3906	UNITS
Collector-Base Voltage	V_{CBO}	60	40	V
Collector-Emitter Voltage	V_{CEO}	40	40	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	200		mA
Power Dissipation	P_D	1.2		W
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	104		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CXT3904		CXT3906		UNITS
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		40		V
BV_{CEO}	$I_C=1.0\text{mA}$	40		40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20		0.25	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.30		0.40	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.95		0.95	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70		80		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	300		100	300
h_{FE}	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	60		60		

SYMBOL	TEST CONDITIONS	CXT3904		CXT3906		UNITS
		MIN	MAX	MIN	MAX	
h_{FE}	$V_{CE}=1.0V, I_C=100mA$	30		30		
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300		250		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0		4.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0		10	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	10	2.0	12	$k\Omega$
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	100	400	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	40	3.0	60	mmhos
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$		5.0		4.0	dB
t_d	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_r	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35		35	ns
t_s	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200		225	ns
t_f	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50		75	ns

All dimensions in inches (mm).



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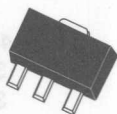
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CXT4033

PNP SILICON TRANSISTOR



SOT-89 CASE

Central™
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CXT4033 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current general purpose amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	80	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	1.0	A
Collector Current (Peak)	I _{CM}	1.5	A
Power Dissipation	P _D	1.2	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	104	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =60V		50	nA
I _{EBO}	V _{EB} =5.0V		10	nA
BV _{CBO}	I _C =10μA	80		V
BV _{CEO}	I _C =10mA	80		V
BV _{EBO}	I _E =10μA	5.0		V
V _{CE} (SAT)	I _C =150mA, I _B =15mA		0.15	V
V _{CE} (SAT)	I _C =500mA, I _B =50mA		0.50	V
V _{BE} (SAT)	I _C =150mA, I _B =15mA		0.90	V
V _{BE} (SAT)	I _C =500mA, I _B =50mA		1.10	V
h _{FE}	V _{CE} =5.0V, I _C =0.1mA	75		
h _{FE}	V _{CE} =5.0V, I _C =100mA	100	300	
h _{FE}	V _{CE} =5.0V, I _C =500mA	70		
h _{FE}	V _{CE} =5.0V, I _C =1.0A	25		

SYMBOL

f_T
 C_{ob}
 C_{ib}

TEST CONDITIONS

$V_{CE}=10V$, $I_C=50mA$, $f=1.0MHz$
 $V_{CB}=10V$, $I_E=0$, $f=1.0MHz$
 $V_{EB}=0.5V$, $I_C=0$, $f=1.0MHz$

MIN

100

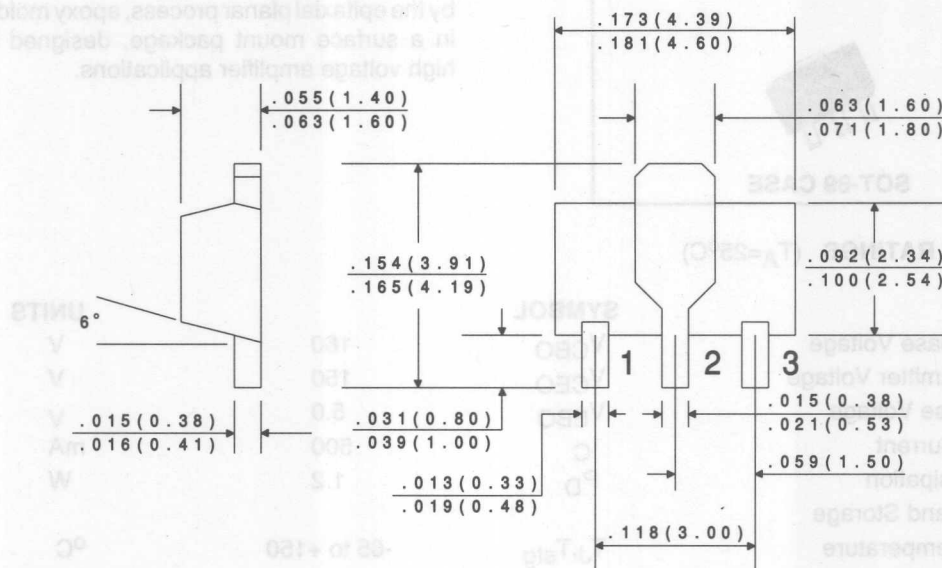
MAX

20
110

UNITS

MHz
pF
pF

All dimensions in inches (mm).



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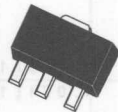
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

CentralTM Semiconductor Corp.

CXT5401

PNP SILICON TRANSISTOR



SOT-89 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT5401 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

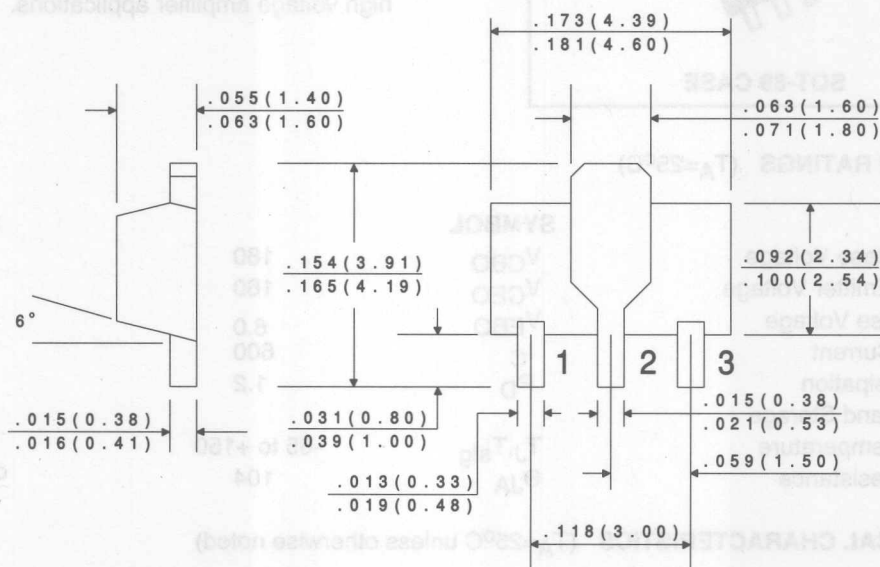
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	160	V
Collector-Emitter Voltage	V _{CEO}	150	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	500	mA
Power Dissipation	P _D	1.2	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	104	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =120V		50	nA
I _{CBO}	V _{CB} =120V, T _A =100°C		50	μA
BV _{CB0}	I _C =100μA	160		V
BV _{CEO}	I _C =1.0mA	150		V
BV _{EBO}	I _E =10μA	5.0		V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA		0.2	V
V _{CE(SAT)}	I _C =50mA, I _B =5.0mA		0.5	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA		1.0	V
V _{BE(SAT)}	I _C =50mA, I _B =5.0mA		1.0	V
h _{FE}	V _{CE} =5.0V, I _C =1.0mA	50		
h _{FE}	V _{CE} =5.0V, I _C =10mA	60	240	
h _{FE}	V _{CE} =5.0V, I _C =50mA	50		
f _T	V _{CE} =10V, I _C =10mA, f=100MHz	100	300	MHz

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		6.0	pF
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	40	200	
NF	$V_{CE}=5.0V, I_C=200\mu A, R_S=10\Omega$ $f=10Hz$ to $15.7kHz$		8.0	dB

All dimensions in inches (mm).



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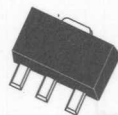
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CXT5551

NPN SILICON TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT5551 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	180	V
Collector-Emitter Voltage	V_{CE0}	160	V
Emitter-Base Voltage	V_{EB0}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	1.2	W
Operating and Storage	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Junction Temperature	θ_{JA}	104	$^{\circ}\text{C/W}$
Thermal Resistance			

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=120\text{V}$		50	nA
I_{CBO}	$V_{CB}=120\text{V}, T_A=100^{\circ}\text{C}$		50	μA
I_{EBO}	$V_{EB}=4.0\text{V}$		50	nA
BV_{CBO}	$I_C=100\mu\text{A}$	180		V
BV_{CEO}	$I_C=1.0\text{mA}$	160		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.15	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.20	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		1.00	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		1.00	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	80		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	80	250	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$	30		
f_T	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	300	MHz

SYMBOL
 C_{ob}
 h_{fe}

NF

TEST CONDITIONS
 $V_{CB}=10V, I_E=0, f=1.0MHz$
 $V_{CE}=10V, I_C=1.0mA, f=1.0kHz$
 $V_{CE}=5.0V, I_C=200mA, R_S=10W$
 $f=10Hz$ to $15.7kHz$

MIN

MAX

UNITS

50

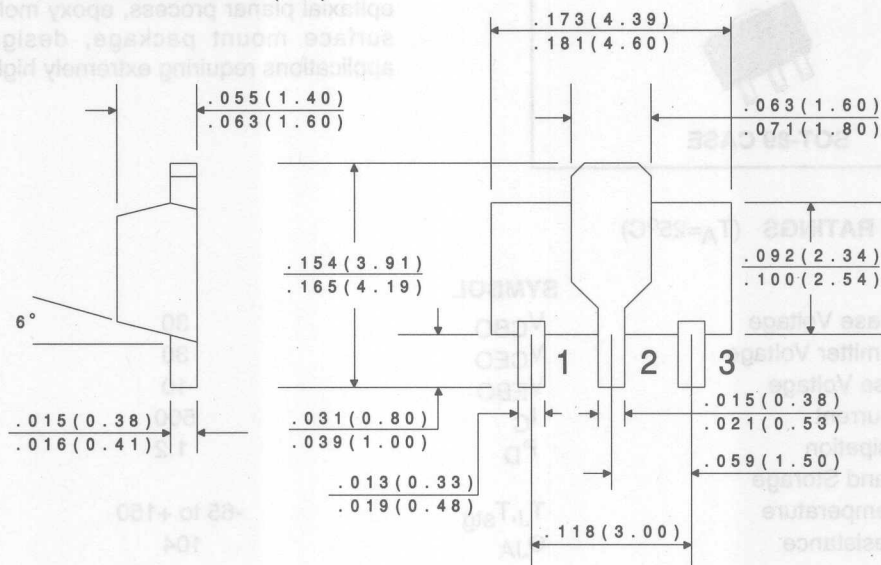
200

pF

8.0

dB

All dimensions in inches (mm).



LEAD CODE:

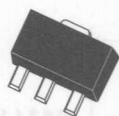
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CXTA14 NPN
CXTA64 PNP

SILICON COMPLEMENTARY
DARLINGTON TRANSISTORS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXTA14, CXTA64 types are complementary silicon Darlington transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

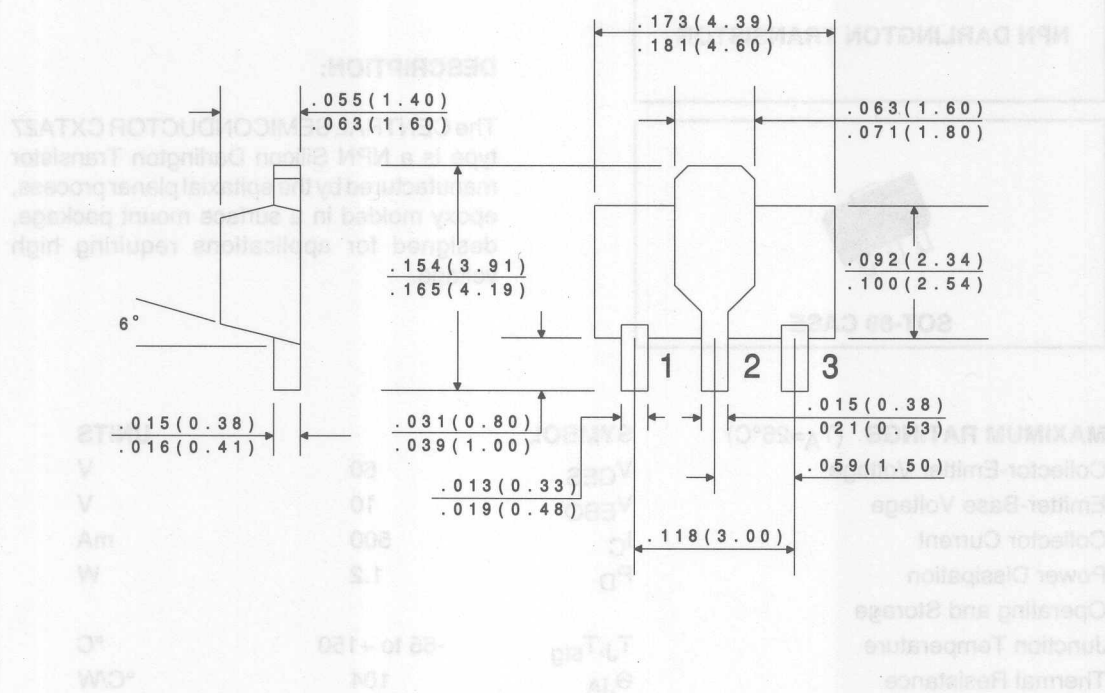
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	30	V
Collector-Emitter Voltage	V_{CE0}	30	V
Emitter-Base Voltage	V_{EB0}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	1.2	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	104	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=30\text{V}$		100	nA
I_{EBO}	$V_{EB}=10\text{V}$		100	nA
BV_{CES}	$I_C=100\mu\text{A}$	30		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	20,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

dimensions in inches (mm).



LEAD CODE:

- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

UNIT	MAX	1) EMITTER	TEST CONDITIONS	SYMBOL
An	100	2) COLLECTOR	$V_{CE}=50V$	I_{CBO}
An	500	3) BASE	$V_{CE}=50V$	I_{CES}
An	100		$V_{EB}=10V$	I_{EBO}
V			$I_C=100\mu A$	$V_{CE(sat)}$
V			$I_C=100\mu A$	$V_{CE(sat)}$
V	1.5		$I_C=100\mu A, I_B=0.1mA$	$V_{CE(sat)}$
V	2.0		$V_{CE}=5.0V, I_C=100\mu A$	$V_{BE(on)}$
			$V_{CE}=5.0V, I_C=10\mu A$	r_{FE}
			$V_{CE}=5.0V, I_C=100\mu A$	r_{FE}
			$V_{CE}=5.0V, I_C=10\mu A, I_E=100\mu A$	r_{FE}

DATA SHEET

R2

CXTA27

NPN DARLINGTON TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXTA27 type is a NPN Silicon Darlington Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring high voltage.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{CES} 60
 V_{EBO} 10
 I_C 500
 P_D 1.2
 T_J, T_{stg} -65 to +150
 θ_{JA} 104

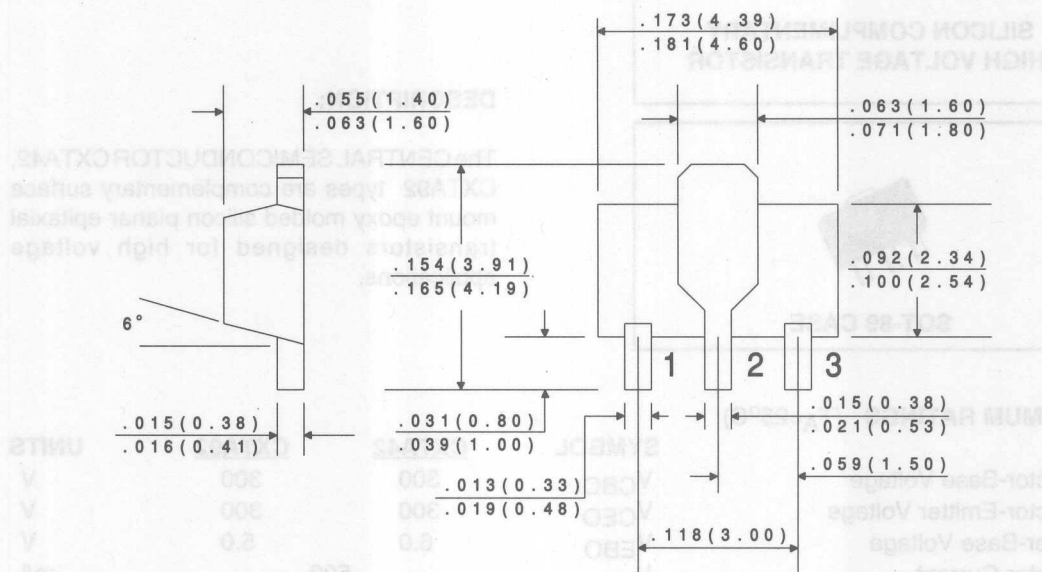
UNITS

V
V
mA
W
 $^\circ\text{C}$
 $^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=50\text{V}$		100	nA
I_{CES}	$V_{CE}=50\text{V}$		500	nA
I_{EBO}	$V_{EB}=10\text{V}$		100	nA
B_{VCBO}	$I_C=100\mu\text{A}$	60		V
B_{VCE}	$I_C=100\mu\text{A}$	60		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	10,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

All dimensions in inches (mm).



LEAD CODE:

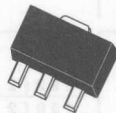
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

SYMBOL	TEST CONDITIONS	MAX	MIN	UNITS
I_{CBO}	$V_{CB}=20V$	100	250	nA
I_{EBO}	$V_{BE}=0V$	100	-	nA
I_{EBO}	$V_{BE}=0V$	100	100	nA
BV_{CBO}	$I_C=100\mu A$	300	300	V
BV_{CEO}	$I_C=1.0mA$	300	300	V
BV_{EBO}	$I_E=100\mu A$	6.0	6.0	V
$V_{CE(SAT)}$	$I_C=50mA, I_E=0.5mA$	0.5	0.5	V
$V_{BE(SAT)}$	$I_C=50mA, I_E=0.5mA$	0.9	0.9	V
h_{FE}	$V_{CE}=10V, I_C=10mA$	35	35	
h_{FE}	$V_{CE}=10V, I_C=10mA$	40	40	
h_{FE}	$V_{CE}=10V, I_C=30mA$	40	25	
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	60	60	MHz
C_{ob}	$V_{CB}=20V, I_C=0, f=1.0MHz$	3.0	8.0	pF

DATA
SHEET

CXTA42 NPN
CXTA92 PNP

SILICON COMPLIMENTARY
HIGH VOLTAGE TRANSISTOR



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXTA42, CXTA92 types are complementary surface mount epoxy molded silicon planar epitaxial transistors designed for high voltage applications.

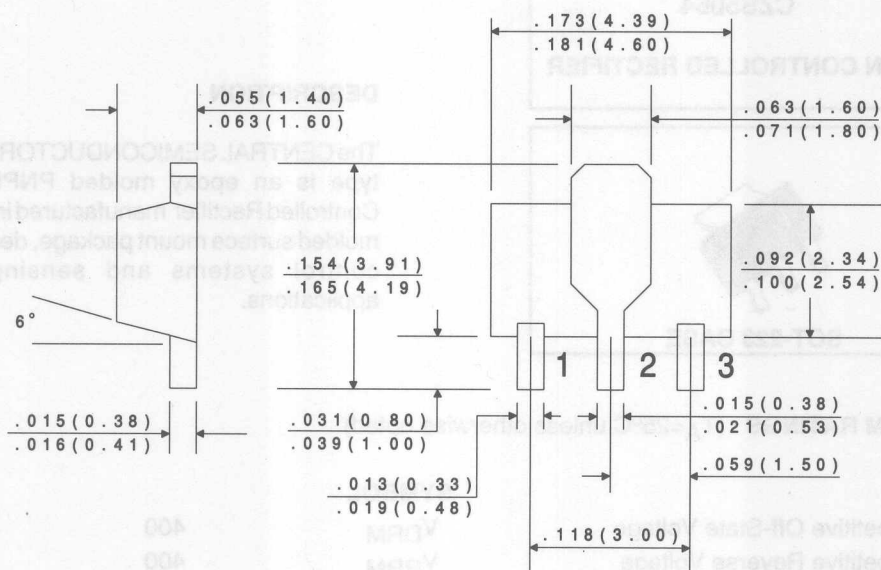
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL	CXTA42	CXTA92	UNITS
Collector-Base Voltage	V _{CB0}	300	300	V
Collector-Emitter Voltage	V _{CEO}	300	300	V
Emitter-Base Voltage	V _{EBO}	6.0	5.0	V
Collector Current	I _C	500		mA
Power Dissipation	P _D	1.2		W
Operating and Storage				
Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JA}	104		°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CXTA42		CXTA92		UNITS
		MIN	MAX	MIN	MAX	
I _{CB0}	V _{CB} =200V		100		250	nA
I _{EBO}	V _{BE} =6.0V		100		-	nA
I _{EBO}	V _{BE} =3.0V		-		100	nA
BV _{CB0}	I _C =100μA	300		300		V
BV _{CEO}	I _C =1.0mA	300		300		V
BV _{EBO}	I _E =100μA	6.0		5.0		V
V _{CE(SAT)}	I _C =20mA, I _B =2.0mA		0.5		0.5	V
V _{BE(SAT)}	I _C =20mA, I _B =2.0mA		0.9		0.9	V
h _{FE}	V _{CE} =10V, I _C =1.0mA	25		25		
h _{FE}	V _{CE} =10V, I _C =10mA	40		40		
h _{FE}	V _{CE} =10V, I _C =30mA	40		25		
f _T	V _{CE} =20V, I _C =10mA, f=100MHz	50		50		MHz
C _{ob}	V _{CB} =20V, I _E =0, f=1.0MHz		3.0		6.0	pF

All dimensions in inches (mm).



LEAD CODE:

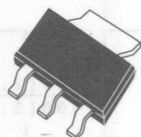
- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

DATA
SHEET

R2

CZS5064

SILICON CONTROLLED RECTIFIER



SOT-223 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR CZS5064 type is an epoxy molded PNP Silicon Controlled Rectifier manufactured in an epoxy molded surface mount package, designed for control systems and sensing circuit applications.

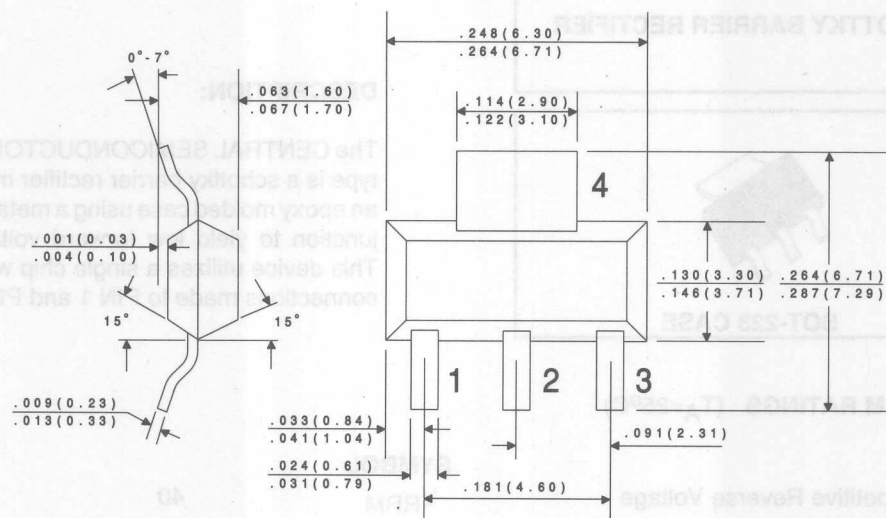
MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

	SYMBOL		UNITS
Peak Repetitive Off-State Voltage	V _{DRM}	400	V
Peak Repetitive Reverse Voltage	V _{RRM}	400	V
RMS On-State Current	I _{T(RMS)}	0.8	A
Average On-State Current (T _C =67°C)	I _{T(AV)}	0.51	A
Operating Junction Temperature	T _J	-40 to +125	°C
Storage Temperature	T _{stg}	-40 to +150	°C
Thermal Resistance	θ _{JA}	150	°C/W
Thermal Resistance	θ _{JC}	25	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{DRM}	V _D =400V, R _{GK} =1KΩ, T _C =125°C		50	μA
I _{RRM}	V _D =400V, R _{GK} =1KΩ, T _C =125°C		50	μA
V _T	I _T =1.2A		1.7	V
I _{GT}	V _D =7.0V, R _L =100Ω, R _{GK} =1KΩ		200	μA
V _{GT}	V _D =7.0V, R _L =100Ω, R _{GK} =1KΩ		0.8	V
V _{GD}	V _D =400V, R _L =100Ω, T _C =125°C	0.1		V
I _H	V _D =7.0, R _{GK} =1KΩ		5.0	mA
t _{ON}	V _D =400V, I _{GT} =1.0mA, I _F =1.0A, R _{GK} =1.0Ω, di/dt=6.0A/μs		2.8 TYP	μs

All dimensions in inches (mm).



LEAD CODE:

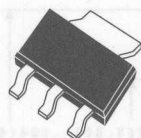
- 1) CATHODE
- 2) ANODE
- 3) GATE
- 4) ANODE

DATA
SHEET

R1

CZSH-4

SCHOTTKY BARRIER RECTIFIER



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZSH-4 type is a schottky barrier rectifier mounted in an epoxy molded case using a metal to silicon junction to yield low forward voltage drop. This device utilizes a single chip with anode connections made to PIN 1 and PIN 3.

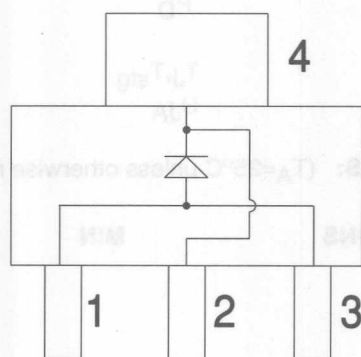
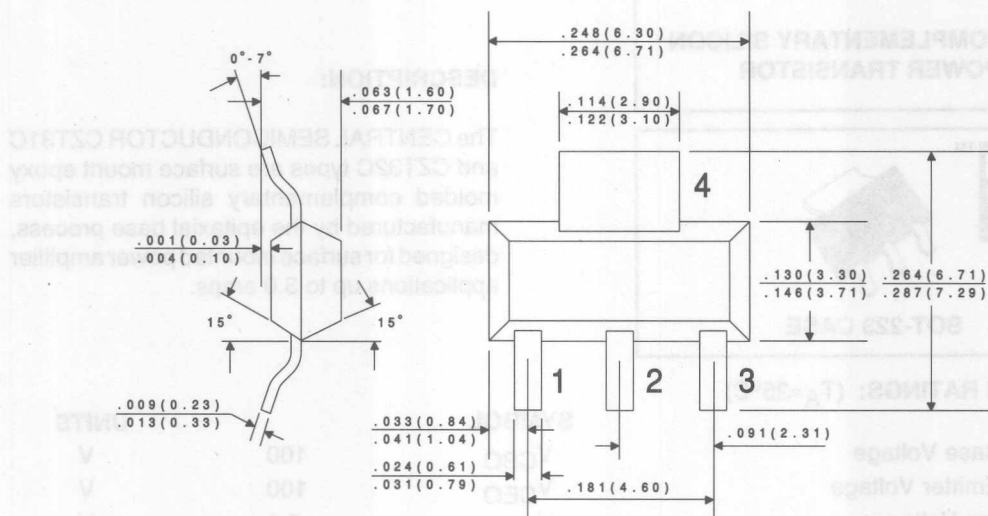
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
DC Blocking Voltage	V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Forward Current	I_O	2.0	A
Peak Forward Surge Current (8.3ms, Non-Rep.)	I_{FSM}	10	A
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_R	$V_R=40\text{V}$		1.0	mA
I_R	$V_R=40\text{V}, T_A=100^{\circ}\text{C}$		10	mA
V_F	$I_F=1.0\text{A}$		0.50	V
V_F	$I_F=2.0\text{A}$		0.60	V

All dimensions in inches (mm).



LEAD CODE:

- 1) ANODE
- 2) CATHODE
- 3) ANODE
- 4) CATHODE

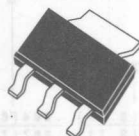
DATA
SHEET

R2

CZT31C NPN
CZT32C PNP

2.0W COMPLEMENTARY SILICON
POWER TRANSISTOR

POWER
223TM



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT31C and CZT32C types are surface mount epoxy molded complementary silicon transistors manufactured by the epitaxial base process, designed for surface mounted power amplifier applications up to 3.0 amps.

MAXIMUM RATINGS: (T_A=25°C)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Peak Collector Current
Base Current
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

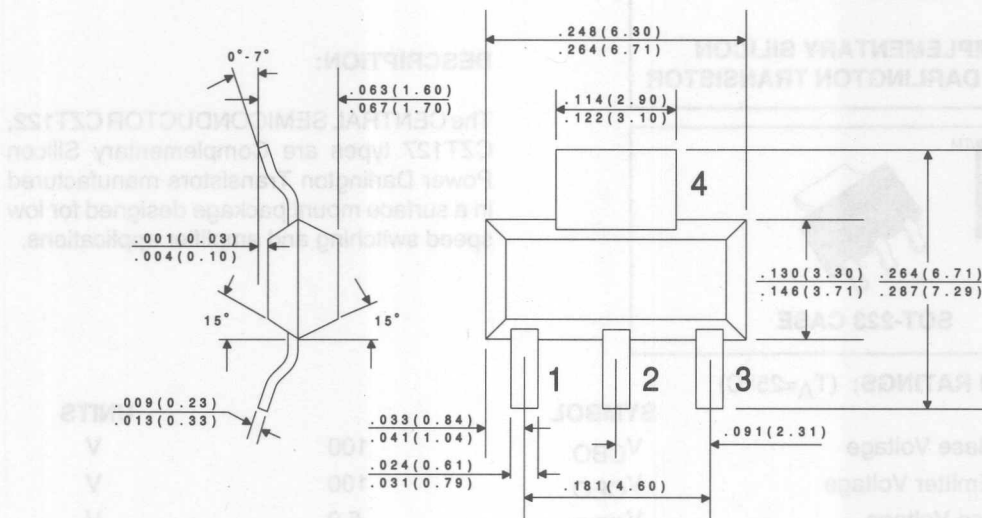
SYMBOL		UNITS
V _{CBO}	100	V
V _{CEO}	100	V
V _{EBO}	5.0	V
I _C	3.0	A
I _{CM}	6.0	A
I _B	1.0	A
P _D	2.0	W
T _J , T _{stg}	-65 to +150	°C
θ _{JA}	62.5	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CES}	V _{CE} =100V		200	μA
I _{CEO}	V _{CE} =60V		300	μA
I _{EBO}	V _{EB} =5.0V		1.0	mA
BV _{CEO}	I _C =30mA	100		V
* V _{CE} (SAT)	I _C =3.0A, I _B =375mA		1.2	V
* V _{BE} (ON)	V _{CE} =4.0V, I _C =3.0A		1.8	V
* h _{FE}	V _{CE} =4.0V, I _C =1.0A	25		
* h _{FE}	V _{CE} =4.0V, I _C =3.0A	10	100	
f _T	V _{CE} =10V, I _C =500mA, f=1.0MHz	3.0		MHz

* Pulsed, 2%D.C.

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

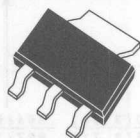
DATA SHEET

R1

CZT122 NPN
CZT127 PNP

COMPLEMENTARY SILICON
POWER DARLINGTON TRANSISTOR

POWERTM
223



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT122, CZT127 types are Complementary Silicon Power Darlington Transistors manufactured in a surface mount package designed for low speed switching and amplifier applications.

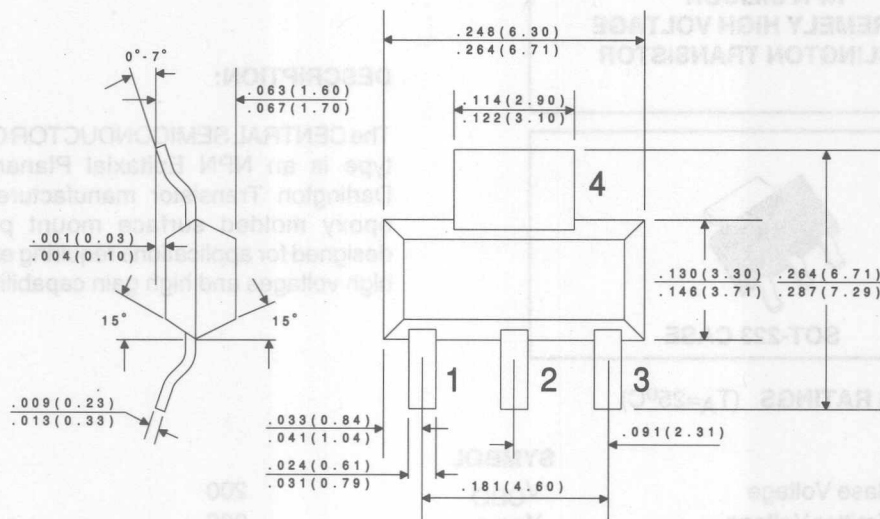
MAXIMUM RATINGS: (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	5.0	A
Peak Collector Current	I _{CM}	8.0	A
Base Current	I _B	120	mA
Power Dissipation	P _D	2.0	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	62.5	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CEO}	V _{CE} =50V		500	μA
I _{CBO}	V _{CB} =100V		200	μA
I _{EBO}	V _{EB} =5.0V		2.0	mA
BV _{CEO}	I _C =30mA	100		V
V _{CE(SAT)}	I _C =3.0A, I _B =12mA		2.0	V
V _{CE(SAT)}	I _C =5.0A, I _B =20mA		4.0	V
V _{BE(ON)}	V _{CE} =3.0V, I _C =3.0A		2.5	V
h _{FE}	V _{CE} =3.0V, I _C =500mA	1000		
h _{FE}	V _{CE} =3.0V, I _C =3.0A	1000		
f _T	V _{CE} =4.0V, I _C =3.0A, f=1.0MHz	4.0		MHz
C _{ob}	V _{CB} =10V, I _E =0, f=1.0MHz (CZT122)		200	pF
C _{ob}	V _{CB} =10V, I _E =0, f=1.0MHz (CZT127)		300	pF

All dimensions in inches (mm).



LEAD CODE:

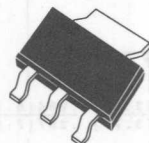
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R1

CZT2000

NPN SILICON
EXTREMELY HIGH VOLTAGE
DARLINGTON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT2000 type is an NPN Epitaxial Planar Silicon Darlington Transistor manufactured in an epoxy molded surface mount package, designed for applications requiring extremely high voltages and high gain capability.

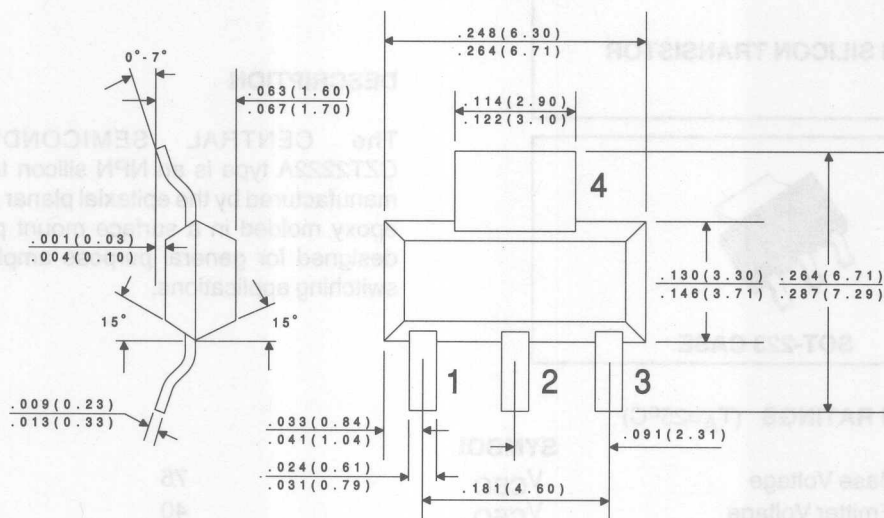
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	200	V
Collector-Emitter Voltage	V_{CES}	200	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=180\text{V}$		500	nA
I_{EBO}	$V_{BE}=10\text{V}$		100	nA
BV_{CES}	$I_C=1.0\text{mA}$	200		V
$V_{CE(SAT)}$	$I_C=20\text{mA}, I_B=25\mu\text{A}$		0.9	V
$V_{CE(SAT)}$	$I_C=80\text{mA}, I_B=40\mu\text{A}$		1.1	V
$V_{CE(SAT)}$	$I_C=160\text{mA}, I_B=100\mu\text{A}$		1.2	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=160\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	3,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	3,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=160\text{mA}$	3,000		

All dimensions in inches (mm).



LEAD CODE:

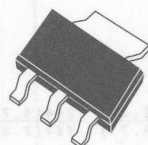
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT2222A

NPN SILICON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR CZT2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for general purpose amplifier and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$		10	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{EBO}	$V_{EB}=3.0\text{V}$		10	nA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	75		V
BV_{CEO}	$I_C=10\text{mA}$	40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.0	V
$V_{BE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
$V_{BE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		

SYMBOL

TEST CONDITIONS

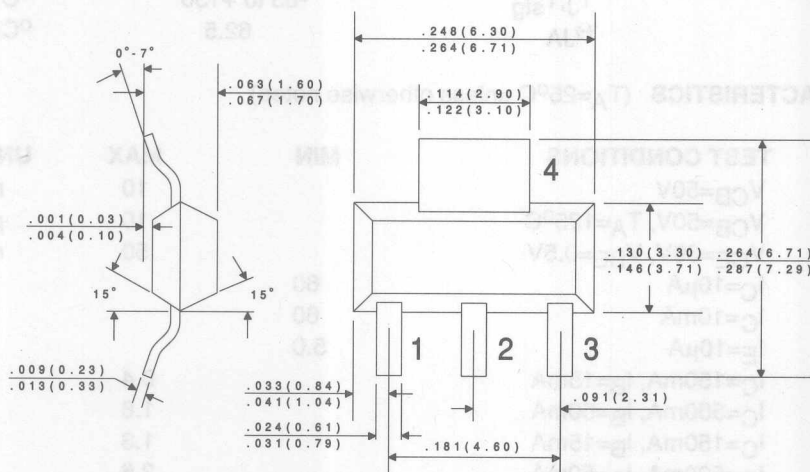
MIN

MAX

UNITS

h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=1.0V, I_C=150mA$	50		
h_{FE}	$V_{CE}=10V, I_C=500mA$	40		
f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	300		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		25	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	k Ω
h_{ie}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$		8.0	$\times 10^{-4}$
h_{re}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$		4.0	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	
h_{fe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	$\mu mhos$
h_{oe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	$\mu mhos$
$rb'C_C$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$		150	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$		4.0	dB
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		25	ns
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		225	ns
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		60	ns

All dimensions in inches (mm).



LEAD CODE:

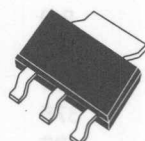
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT2907A

PNP SILICON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT2907A type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for general purpose amplifier and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

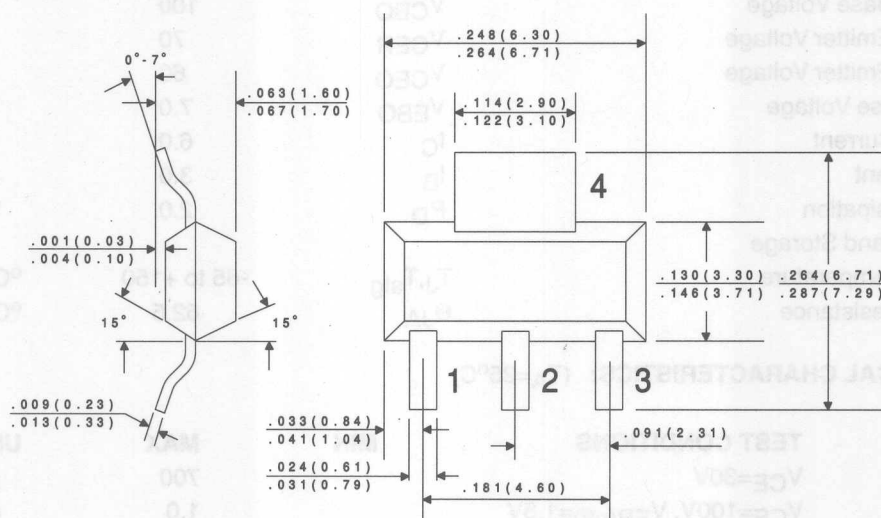
	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CE0}	60	V
Emitter-Base Voltage	V_{EB0}	5.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CB0}	$V_{CB}=50\text{V}$		10	nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=125^{\circ}\text{C}$		10	μA
I_{CEV}	$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$		50	nA
BV_{CB0}	$I_C=10\mu\text{A}$	60		V
BV_{CE0}	$I_C=10\text{mA}$	60		V
BV_{EB0}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	75		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	$V_{CE}=10V, I_C=10mA$	100		
h_{FE}	$V_{CE}=10V, I_C=150mA$	100	300	
h_{FE}	$V_{CE}=10V, I_C=500mA$	50		
f_T	$V_{CE}=20V, I_C=50mA, f=100MHz$	200		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
C_{ib}	$V_{BE}=2.0V, I_C=0, f=1.0MHz$		30	pF
t_{on}	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		45	ns
t_d	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		40	ns
t_{off}	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		100	ns
t_s	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		80	ns
t_f	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$		30	ns

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

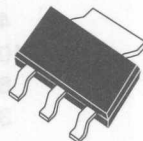
DATA SHEET

R2

CZT2955 PNP
CZT3055 NPN

2.0W SURFACE MOUNT
COMPLEMENTARY SILICON
POWER TRANSISTOR

POWER
223TM



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT2955 and CZT3055 types are surface mount epoxy molded complementary silicon transistors manufactured by the epitaxial base process, designed for surface mounted power amplifier applications up to 6.0 amps.

MAXIMUM RATINGS: (T_A=25°C)

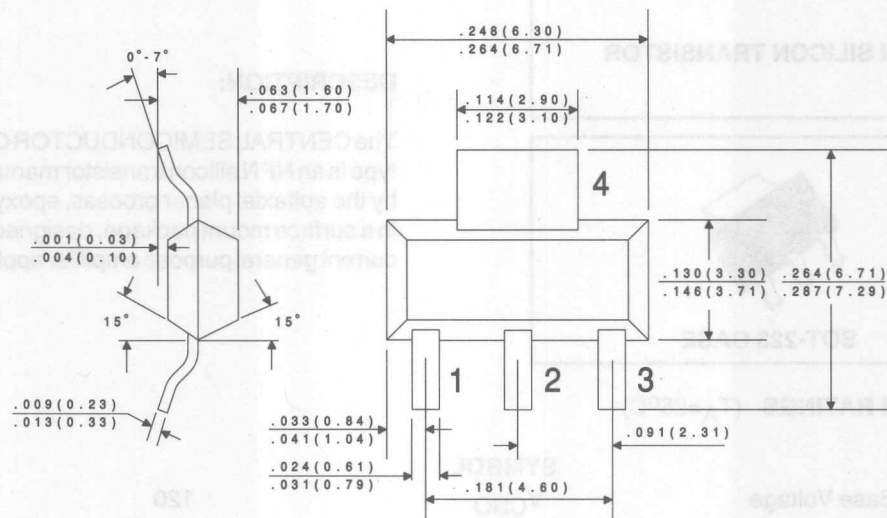
	SYMBOL		UNITS
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CER}	70	V
Collector-Emitter Voltage	V _{CEO}	60	V
Emitter-Base Voltage	V _{EBO}	7.0	V
Collector Current	I _C	6.0	A
Base Current	I _B	3.0	A
Power Dissipation	P _D	2.0	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	62.5	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CEO}	V _{CE} =30V		700	μA
I _{CEV}	V _{CE} =100V, V _{EB(off)} =1.5V		1.0	mA
I _{EBO}	V _{EB} =7.0V		5.0	mA
BV _{CER}	I _C =30mA, R _{BE} =100Ω	70		V
BV _{CEO}	I _C =30mA	60		V
* V _{CE(SAT)}	I _C =4.0A, I _B =400mA		1.1	V
* V _{BE(ON)}	V _{CE} =4.0V, I _C =4.0A		1.5	V
* h _{FE}	V _{CE} =4.0V, I _C =4.0A	20	70	
* h _{FE}	V _{CE} =4.0V, I _C =6.0A	5.0		
f _T	V _{CE} =10V, I _C =500mA, f=1.0MHz	2.5		MHz

* Pulsed, 2% D.C.

All dimensions in inches (mm).



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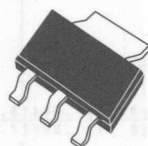
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R1

CZT3019

NPN SILICON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT3019 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current general purpose amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	120	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	7.0	V
Collector Current	I _C	1.0	A
Collector Current (Peak)	I _{CM}	1.5	A
Power Dissipation	P _D	2.0	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	62.5	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =90V		10	nA
I _{EBO}	V _{EB} =5.0V		10	nA
BV _{CB0}	I _C =100μA	120		V
BV _{CEO}	I _C =30mA	80		V
BV _{EBO}	I _E =100μA	7.0		V
V _{CE(SAT)}	I _C =150mA, I _B =15mA		0.2	V
V _{CE(SAT)}	I _C =500mA, I _B =50mA		0.5	V
V _{BE(SAT)}	I _C =150mA, I _B =15mA		1.1	V
h _{FE}	V _{CE} =10V, I _C =0.1mA	50		
h _{FE}	V _{CE} =10V, I _C =10mA	90		
h _{FE}	V _{CE} =10V, I _C =150mA	100	300	
h _{FE}	V _{CE} =10V, I _C =500mA	50		
h _{FE}	V _{CE} =10V, I _C =1.0A	15		

SYMBOL

f_T
 C_{ob}
 C_{ib}
NF

TEST CONDITIONS

$V_{CE}=10V$, $I_C=50mA$, $f=1.0MHz$
 $V_{CB}=10V$, $I_E=0$, $f=1.0MHz$
 $V_{EB}=0.5V$, $I_C=0$, $f=1.0MHz$
 $V_{CE}=10V$, $I_C=100\mu A$, $R_S=1k\Omega$, $f=1.0kHz$

MIN

100

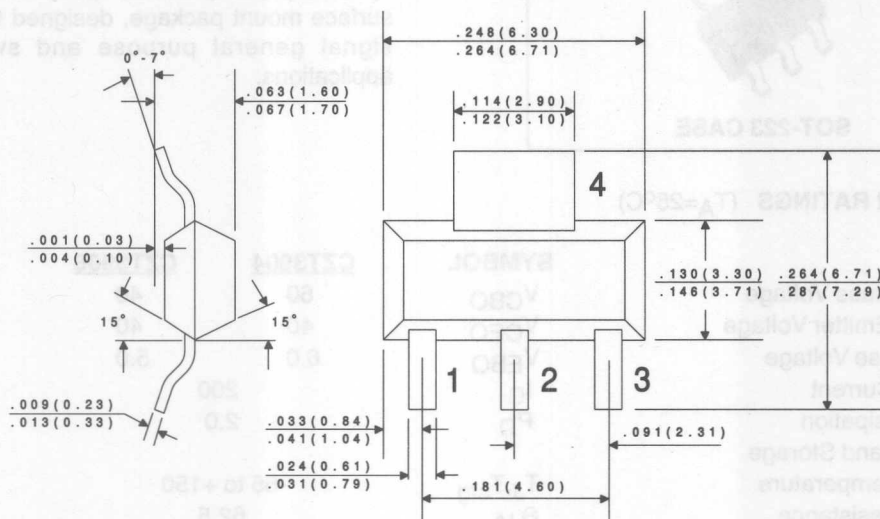
MAX

12
60
4.0

UNITS

MHz
pF
pF
dB

All dimensions in inches (mm).



LEAD CODE:

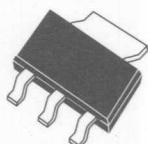
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT3904 NPN
CZT3906 PNP

COMPLEMENTARY
SILICON TRANSISTORS



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT3904, CZT3906 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

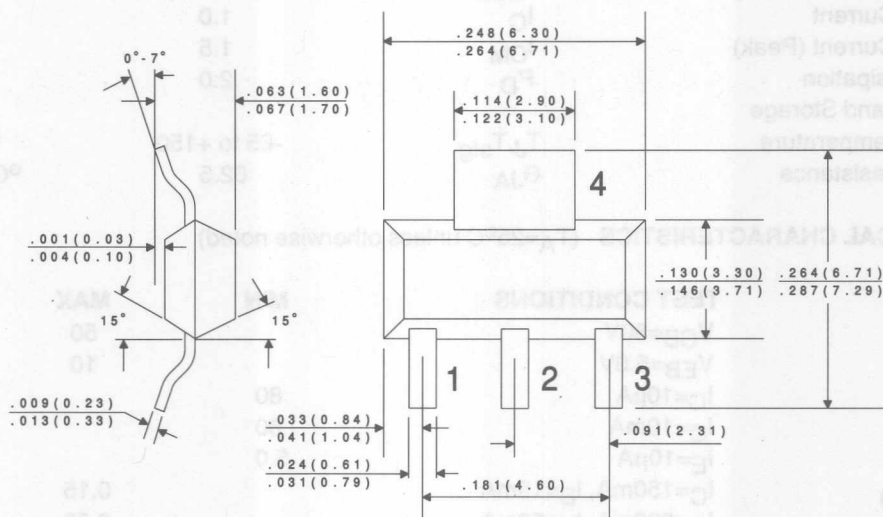
	SYMBOL	CZT3904	CZT3906	UNITS
Collector-Base Voltage	V_{CBO}	60	40	V
Collector-Emitter Voltage	V_{CEO}	40	40	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	200		mA
Power Dissipation	P_D	2.0		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CZT3904		CZT3906		UNITS
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60		40		V
BV_{CEO}	$I_C=1.0\text{mA}$	40		40		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20		0.25	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.30		0.40	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.95		0.95	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70		80		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	300	100	300	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	60		60		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	30		30		

SYMBOL	TEST CONDITIONS	CZT3904		CZT3906		UNITS
		MIN	MAX	MIN	MAX	
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	250			MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0	4.5		pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0	10		pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	10	2.0	12	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	100	400	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	40	3.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$		5.0	4.0		dB
t_d	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35	35		ns
t_r	$V_{CC}=3.0V, V_{BE}=0.5, I_C=10mA, I_{B1}=1.0mA$		35	35		ns
t_s	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200	225		ns
t_f	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50	75		ns

All dimensions in inches (mm).



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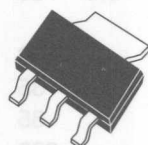
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT4033

PNP SILICON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT4033 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current general purpose amplifier applications.

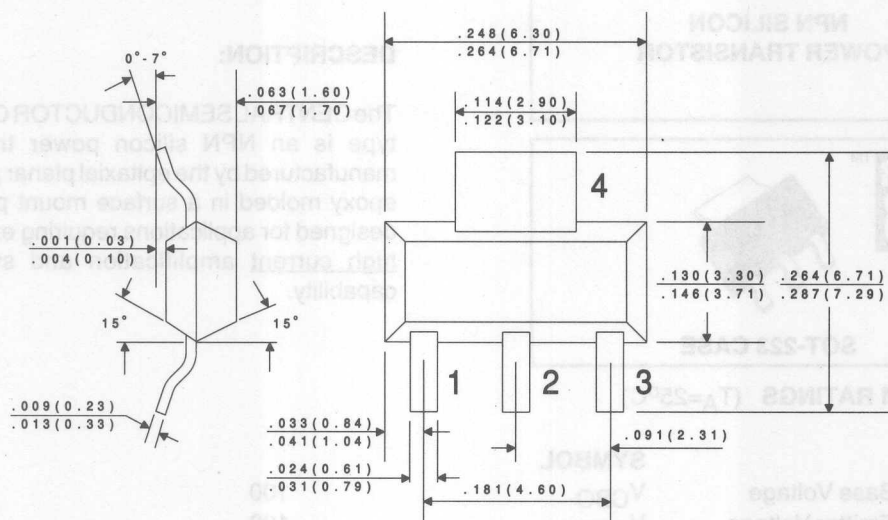
MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	80	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	1.0	A
Collector Current (Peak)	I _{CM}	1.5	A
Power Dissipation	P _D	2.0	W
Operating and Storage	T _J , T _{stg}	-65 to +150	°C
Junction Temperature	θ _{JA}	62.5	°C/W
Thermal Resistance			

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CB0}	V _{CB} =60V		50	nA
I _{EBO}	V _{EB} =5.0V		10	nA
BV _{CB0}	I _C =10μA	80		V
BV _{CEO}	I _C =10mA	80		V
BV _{EBO}	I _E =10μA	5.0		V
V _{CE} (SAT)	I _C =150mA, I _B =15mA		0.15	V
V _{CE} (SAT)	I _C =500mA, I _B =50mA		0.50	V
V _{BE} (SAT)	I _C =150mA, I _B =15mA		0.90	V
V _{BE} (SAT)	I _C =500mA, I _B =50mA		1.10	V
h _{FE}	V _{CE} =5.0V, I _C =0.1mA	75		
h _{FE}	V _{CE} =5.0V, I _C =100mA	100	300	
h _{FE}	V _{CE} =5.0V, I _C =500mA	70		
h _{FE}	V _{CE} =5.0V, I _C =1.0A	25		
f _T	V _{CE} =10V, I _C =50mA, f=1.0MHz	100		MHz
C _{ob}	V _{CB} =10V, I _E =0, f=1.0MHz		20	pF
C _{ib}	V _{EB} =0.5V, I _C =0, f=1.0MHz		110	pF

All dimensions in inches (mm).



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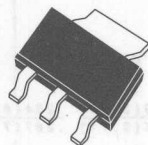
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT5338
NPN SILICON
POWER TRANSISTOR

POWER
223TM



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT5338 type is an NPN silicon power transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high current amplification and switching capability.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

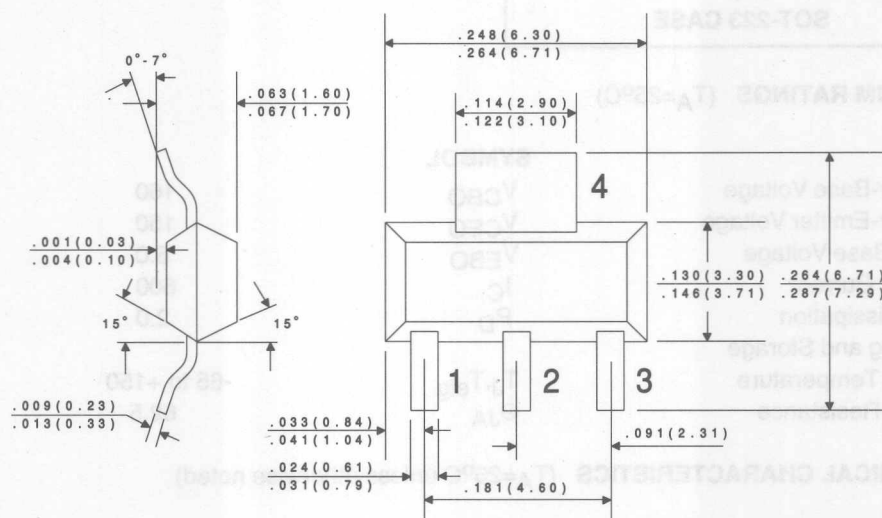
	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	5.0	A
Base Current	I_B	1.0	A
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=100\text{V}$		10	μA
I_{EBO}	$V_{BE}=6.0\text{V}$		100	μA
I_{CEO}	$V_{CE}=90\text{V}$		100	μA
BV_{CEO}	$I_C=50\text{mA}$	100		V
$V_{CE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$		0.7	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$		1.2	V
$V_{BE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$		1.2	V
$V_{BE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$		1.8	V
h_{FE}	$V_{CE}=2.0\text{V}, I_C=500\text{mA}$	30		
h_{FE}	$V_{CE}=2.0\text{V}, I_C=2.0\text{A}$	30	120	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=5.0\text{A}$	20		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=10V, I_C=500mA, f=10MHz$	30		MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		250	pF
C_{ib}	$V_{BE}=2.0V, I_C=0, f=1.0MHz$		1000	pF
t_d	$V_{CC}=40V, V_{BE}=3.0V, I_C=2.0A, I_{B1}=200mA$		100	ns
t_r	$V_{CC}=40V, V_{BE}=3.0V, I_C=2.0A, I_{B1}=200mA$		100	ns
t_s	$V_{CC}=40V, I_C=2.0A, I_{B1}=I_{B2}=200mA$		2.0	μs
t_f	$V_{CC}=40V, I_C=2.0A, I_{B1}=I_{B2}=200mA$		200	ns

All dimensions in inches (mm).



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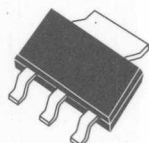
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

CZT5401

PNP SILICON TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT5401 type is an PNP silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

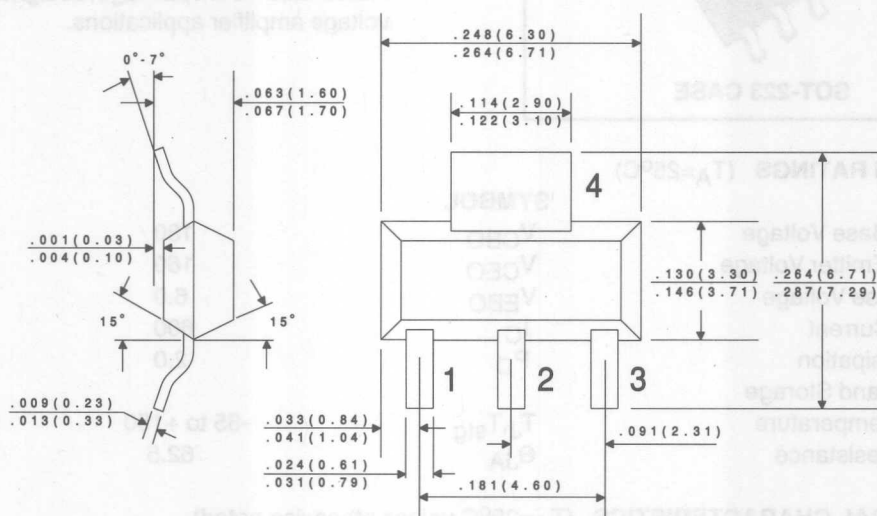
	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	160	V
Collector-Emitter Voltage	V_{CE0}	150	V
Emitter-Base Voltage	V_{EB0}	5.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=100\text{V}$		50	nA
I_{CBO}	$V_{CB}=100\text{V}, T_A=150^{\circ}\text{C}$		50	μA
I_{EBO}	$V_{EB}=3.0\text{V}$		50	nA
BV_{CBO}	$I_C=100\mu\text{A}$	160		V
BV_{CEO}	$I_C=1.0\text{mA}$	150		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.2	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.5	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		1.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	50		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	60	240	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$	50		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=10V, I_C=10mA, f=100MHz$	100	300	MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		6.0	pF
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	40	200	
NF	$V_{CE}=5.0V, I_C=200\mu A, R_S=10\Omega$ $f=10Hz$ to $15.7kHz$		8.0	dB

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

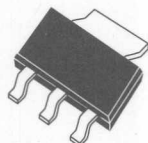
DATA
SHEET

R2

CentralTM Semiconductor Corp.

CZT5551

NPN SILICON TRANSISTOR



SOT-223 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZT5551 type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high voltage amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

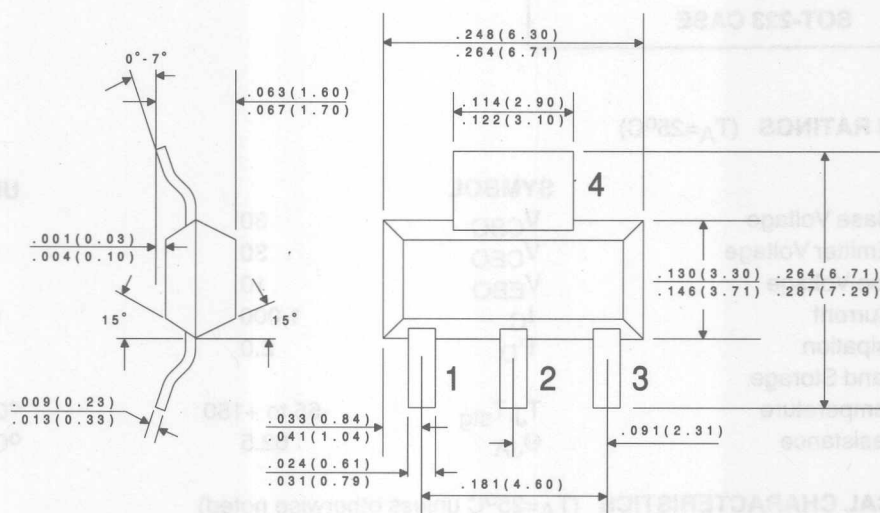
	SYMBOL		UNITS
Collector-Base Voltage	V _{CB0}	180	V
Collector-Emitter Voltage	V _{CEO}	160	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	600	mA
Power Dissipation	P _D	2.0	W
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	62.5	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{CBO}	V _{CB} =120V		50	nA
I _{CBO}	V _{CB} =120V, T _A =100°C		50	μA
I _{EBO}	V _{EB} =4.0V		50	nA
BV _{CBO}	I _C =100μA	180		V
BV _{CEO}	I _C =1.0mA	160		V
BV _{EBO}	I _E =10μA	6.0		V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA		0.15	V
V _{CE(SAT)}	I _C =50mA, I _B =5.0mA		0.20	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA		1.00	V
V _{BE(SAT)}	I _C =50mA, I _B =5.0mA		1.00	V
h _{FE}	V _{CE} =5.0V, I _C =1.0mA	80		
h _{FE}	V _{CE} =5.0V, I _C =10mA	80	250	
h _{FE}	V _{CE} =5.0V, I _C =50mA	30		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=10V, I_C=10mA, f=100MHz$	100	300	MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$		6.0	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		20	pF
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	200	
NF	$V_{CE}=5.0V, I_C=200\mu A, R_S=10\Omega$ $f=10Hz$ to $15.7kHz$		8.0	dB

All dimensions in inches (mm).



LEAD CODE:

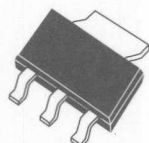
- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 3) COLLECTOR

DATA SHEET

R2

CZTA14 NPN
CZTA64 PNP

**SILICON COMPLEMENTARY
DARLINGTON TRANSISTORS**



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZTA14, CZTA64 types are complementary silicon Darlington transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

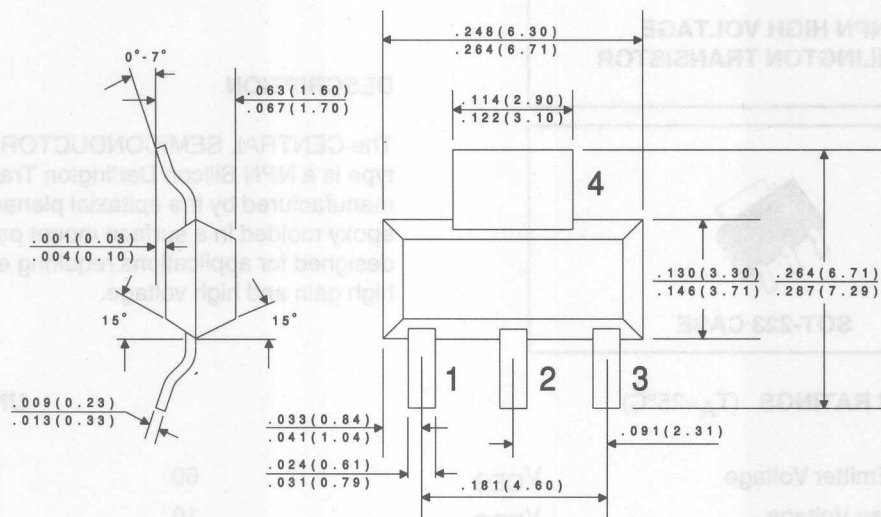
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	1,000	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=30\text{V}$		100	nA
I_{CEO}	$V_{CE}=10\text{V}$		100	nA
BV_{CES}	$I_C=100\mu\text{A}$	30		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	20,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

All dimensions in inches (mm).

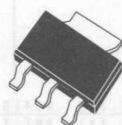


LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

R2

**CZTA27****NPN HIGH VOLTAGE
DARLINGTON TRANSISTOR****SOT-223 CASE****CentralTM**
Semiconductor Corp.**DESCRIPTION**

The CENTRAL SEMICONDUCTOR CZTA27 type is a NPN Silicon Darlington Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain and high voltage.

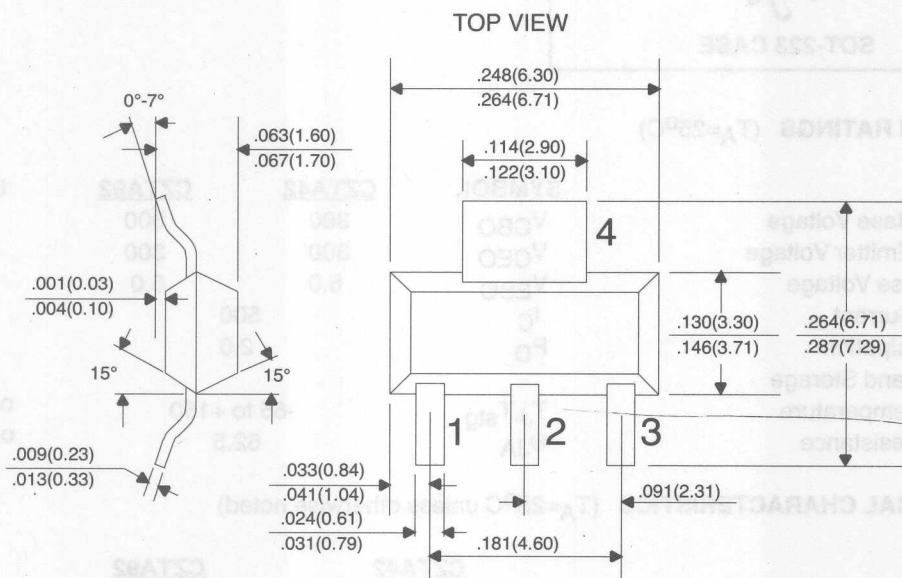
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)**UNITS**

Collector-Emitter Voltage	V_{CES}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	2.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	62.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=50\text{V}$		100	nA
I_{CES}	$V_{CE}=50\text{V}$		500	nA
I_{EBO}	$V_{EB}=10\text{V}$		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	60		V
BV_{CES}	$I_C=100\mu\text{A}$	60		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	10,000		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	10,000		
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	125		MHz

All Dimensions in Inches (mm)



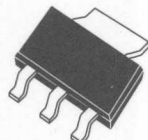
LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
SHEET

CZTA42 NPN
CZTA92 PNP

COMPLEMENTARY
SILICON HIGH VOLTAGE TRANSISTOR



SOT-223 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZTA42, CZTA92 types are complementary surface mount epoxy molded silicon planar epitaxial transistors designed for high voltage applications.

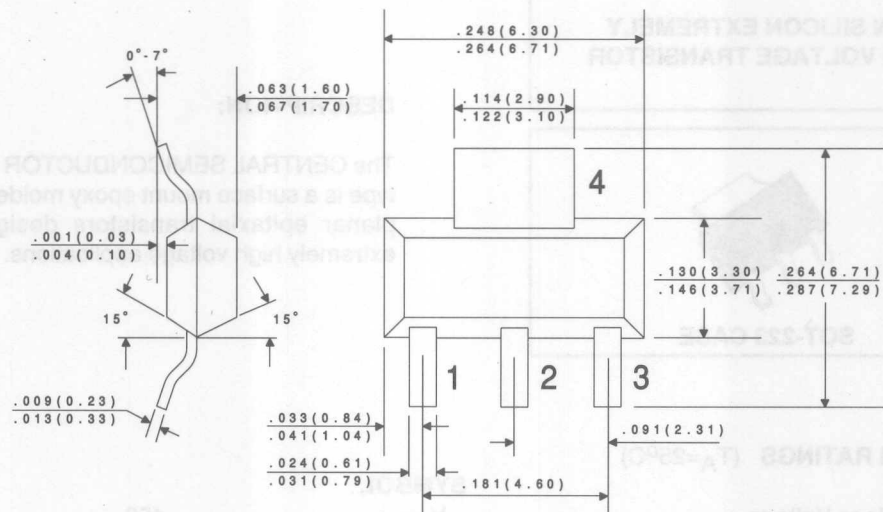
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

	SYMBOL	CZTA42	CZTA92	UNITS
Collector-Base Voltage	V_{CB0}	300	300	V
Collector-Emitter Voltage	V_{CEO}	300	300	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	500		mA
Power Dissipation	P_D	2.0		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	62.5		$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CZTA42		CZTA92		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=200\text{V}$		100		250	nA
I_{EBO}	$V_{BE}=6.0\text{V}$		100		-	nA
I_{EBO}	$V_{BE}=3.0\text{V}$		-		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	300		300		V
BV_{CEO}	$I_C=1.0\text{mA}$	300		300		V
BV_{EBO}	$I_E=100\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=20\text{mA}, I_B=2.0\text{mA}$		0.5		0.5	V
$V_{BE(SAT)}$	$I_C=20\text{mA}, I_B=2.0\text{mA}$		0.9		0.9	V
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	25		25		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	40		40		
h_{FE}	$V_{CE}=10\text{V}, I_C=30\text{mA}$	40		25		
f_T	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	50		50		MHz
C_{ob}	$V_{CB}=20\text{V}, I_E=0, f=1.0\text{MHz}$		3.0		6.0	pF

All dimensions in inches (mm).

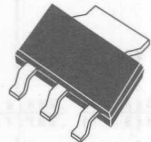


LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA SHEET

R2

CZTA44**NPN SILICON EXTREMELY
HIGH VOLTAGE TRANSISTOR****SOT-223 CASE**

Semiconductor Corp.
DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZTA44 type is a surface mount epoxy molded silicon planar epitaxial transistors designed for extremely high voltage applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Power Dissipation
Operating and Storage
Junction Temperature
Thermal Resistance

SYMBOL

V_{CB0}
 V_{CEO}
 V_{EBO}
 I_C
 P_D

450
400
6.0
300
2.0

UNITS

V
V
V
mA
W

T_J, T_{stg}
 θ_{JA}

-65 to +150
62.5

$^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=400\text{V}$		100	nA
I_{CES}	$V_{CE}=400\text{V}$		500	nA
I_{EBO}	$V_{BE}=4.0\text{V}$		100	nA
BV_{CBO}	$I_C=100\mu\text{A}$	450		V
BV_{CES}	$I_C=100\mu\text{A}$	450		V
BV_{CEO}	$I_C=1.0\text{mA}$	400		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=1.0\text{mA}, I_B=0.1\text{mA}$		0.40	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.50	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.75	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.75	V
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	40		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	50	200	
h_{FE}	$V_{CE}=10\text{V}, I_C=50\text{mA}$	45		

SYMBOL

h_{FE}
 f_T
 C_{ob}
 C_{ib}

TEST CONDITIONS

$V_{CE}=10V, I_C=100mA$
 $V_{CE}=10V, I_C=10mA, f=10MHz$
 $V_{CB}=20V, I_E=0, f=1.0MHz$
 $V_{EB}=0.5V, I_C=0, f=1.0MHz$

MIN

20
 20

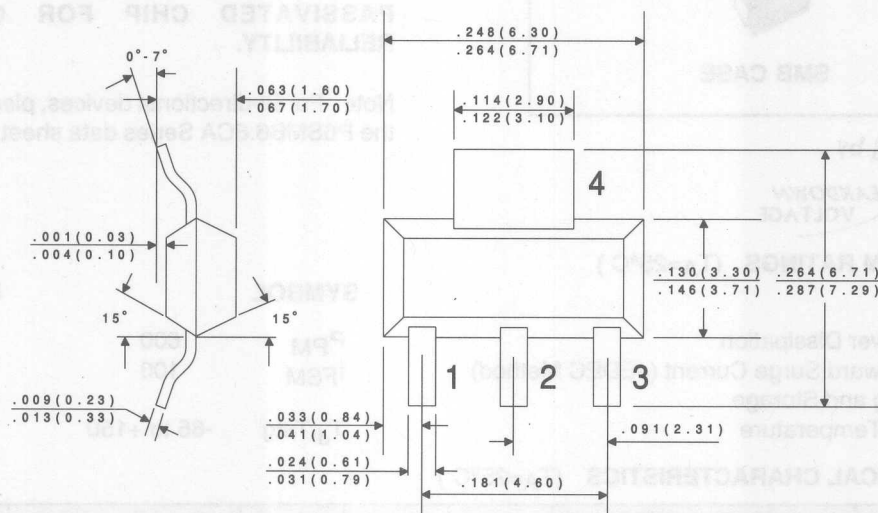
MAX

7.0
 130

UNITS

MHz
 pF
 pF

All dimensions in inches (mm).


LEAD CODE:

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

DATA
 SHEET

R2

NEW P6SMB6.8A
THRU
P6SMB200A

UNI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
600 WATTS, 6.8 THRU 200 VOLTS



SMB CASE

Specified by
BREAKDOWN
VOLTAGE

MAXIMUM RATINGS (T_A=25°C)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR P6SMB6.8A Series types are Surface Mount Uni-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Bi-directional devices, please refer to the P6SMB6.8CA Series data sheet.

SYMBOL		UNITS
P _{PM}	600	W
I _{FSM}	100	A
T _J , T _{stg}	-65 to +150	°C

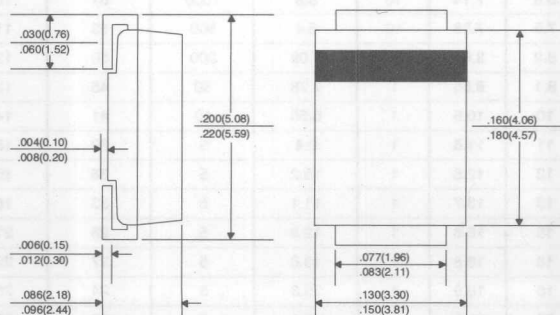
ELECTRICAL CHARACTERISTICS (T_A=25°C)

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @ V _{RWM}	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE VOLTAGE @ I _{RSM}	MAXIMUM TEMP. COEFFICIENT of V _{BR}	MARKING CODE
	V _{BR}			@ I _T						
	VOLTS									
	MIN	NOM	MAX	mA	VOLTS	μA	A	VOLTS	%/°C	
P6SMB6.8A	6.45	6.8	7.14	10	5.8	1000	57	10.5	0.057	C6V8A
P6SMB7.5A	7.13	7.5	7.88	10	6.4	500	53	11.3	0.061	C7V5A
P6SMB8.2A	7.79	8.2	8.61	10	7.02	200	50	12.1	0.065	C8V2A
P6SMB9.1A	8.65	9.1	9.55	1	7.78	50	45	13.4	0.068	C9V1A
P6SMB10A	9.5	10	10.5	1	8.55	10	41	14.5	0.073	C10A
P6SMB11A	10.5	11	11.6	1	9.4	5	38	15.6	0.075	C11A
P6SMB12A	11.4	12	12.6	1	10.2	5	36	16.7	0.078	C12A
P6SMB13A	12.4	13	13.7	1	11.1	5	33	18.2	0.081	C13A
P6SMB15A	14.3	15	15.8	1	12.8	5	28	21.2	0.084	C15A
P6SMB16A	15.2	16	16.8	1	13.6	5	27	22.5	0.086	C16A
P6SMB18A	17.1	18	18.9	1	15.3	5	24	25.2	0.088	C18A
P6SMB20A	19.0	20	21.0	1	17.1	5	22	27.7	0.090	C20A

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE V_{RWM}	MAXIMUM REVERSE LEAKAGE @ V_{RWM} I_R	MAXIMUM REVERSE SURGE CURRENT I_{RSM}	MAXIMUM REVERSE VOLTAGE @ I_{RSM} V_{RSM}	MAXIMUM TEMP. COEFFICIENT of V_{BR} %/°C	MARKING CODE
	V_{BR}			@ I_T						
	VOLTS									
MIN	NOM	MAX	mA	VOLTS	μA	A	VOLTS	%/°C		
P6SMB22A	20.9	22	23.1	1	18.8	5	20	30.6	0.092	C22A
P6SMB24A	22.8	24	25.2	1	20.5	5	18	33.2	0.094	C24A
P6SMB27A	25.7	27	28.4	1	23.1	5	16	37.5	0.096	C27A
P6SMB30A	28.5	30	31.5	1	25.6	5	14.4	41.4	0.097	C30A
P6SMB33A	31.4	33	34.7	1	28.2	5	13.2	45.7	0.098	C33A
P6SMB36A	34.2	36	37.8	1	30.8	5	12.0	49.9	0.099	C36A
P6SMB39A	37.1	39	41.0	1	33.3	5	11.2	53.9	0.100	C39A
P6SMB43A	40.9	43	45.2	1	36.8	5	10.1	59.3	0.101	C43A
P6SMB47A	44.7	47	49.4	1	40.2	5	9.3	64.8	0.101	C47A
P6SMB51A	48.5	51	53.6	1	43.6	5	8.6	70.1	0.102	C51A
P6SMB56A	53.2	56	58.8	1	47.8	5	7.8	77	0.103	C56A
P6SMB62A	58.9	62	65.1	1	53.0	5	7.1	85	0.104	C62A
P6SMB68A	64.6	68	71.4	1	58.1	5	6.5	92	0.104	C68A
P6SMB75A	71.3	75	78.8	1	64.1	5	5.8	103	0.105	C75A
P6SMB82A	77.9	82	86.1	1	70.1	5	5.3	113	0.105	C82A
P6SMB91A	86.5	91	95.5	1	77.8	5	4.8	125	0.106	C91A
P6SMB100A	95.0	100	105	1	85.5	5	4.4	137	0.106	C100A
P6SMB110A	104.5	110	115.5	1	94.0	5	4.0	152	0.107	C110A
P6SMB120A	114	120	126	1	102	5	3.6	165	0.107	C120A
P6SMB130A	123.5	130	136.5	1	111	5	3.3	179	0.107	C130A
P6SMB150A	142.5	150	157.5	1	128	5	2.9	207	0.108	C150A
P6SMB160A	152	160	168	1	136	5	2.7	219	0.108	C160A
P6SMB170A	161.5	170	178.5	1	145	5	2.6	234	0.108	C170A
P6SMB180A	171	180	189	1	154	5	2.4	246	0.108	C180A
P6SMB200A	190	200	210	1	171	5	2.2	274	0.108	C200A

All dimensions in inches (mm).

TOP VIEW



DATA
SHEET

R2

NEW P6SMB6.8CA
THRU
P6SMB200CA

BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
600 WATTS, 6.8 THRU 200 VOLTS



Specified by
BREAKDOWN
VOLTAGE

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Peak Power Dissipation
Peak Forward Surge Current (JEDEC Method)
Operating and Storage
Junction Temperature

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

TYPE NO.	BREAKDOWN VOLTAGE				@ I _T	WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE @ V _{RWM}	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE VOLTAGE @ I _{RSM}	MAXIMUM TEMP. COEFFICIENT of V _{BR}	MARKING CODE
	V _{BR}										
	VOLTS										
	MIN	NOM	MAX	mA								V_{RWM} VOLTS	I_{R} μA	I_{RSM} A	V_{RSM} VOLTS	%/°C
P6SMB6.8CA	6.45	6.8	7.14	10	5.8	1000	57	10.5	0.057	C6V8C	
P6SMB7.5CA	7.13	7.5	7.88	10	6.4	500	53	11.3	0.061	C7V5C	
P6SMB8.2CA	7.79	8.2	8.61	10	7.02	200	50	12.1	0.065	C8V2C	
P6SMB9.1CA	8.65	9.1	9.55	1	7.78	50	45	13.4	0.068	C9V1C	
P6SMB10CA	9.5	10	10.5	1	8.55	10	41	14.5	0.073	C10C	
P6SMB11CA	10.5	11	11.6	1	9.4	5	38	15.6	0.075	C11C	
P6SMB12CA	11.4	12	12.6	1	10.2	5	36	16.7	0.078	C12C	
P6SMB13CA	12.4	13	13.7	1	11.1	5	33	18.2	0.081	C13C	
P6SMB15CA	14.3	15	15.8	1	12.8	5	28	21.2	0.084	C15C	
P6SMB16CA	15.2	16	16.8	1	13.6	5	27	22.5	0.086	C16C	
P6SMB18CA	17.1	18	18.9	1	15.3	5	24	25.2	0.088	C18C	
P6SMB20CA	19.0	20	21.0	1	17.1	5	22	27.7	0.090	C20C	

CentralTM
Semiconductor Corp.

DESCRIPTION

The CENTRAL SEMICONDUCTOR P6SMB6.8CA Series types are Surface Mount Bi-Directional Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For Uni-directional devices, please refer to the P6SMB6.8A Series data sheet.

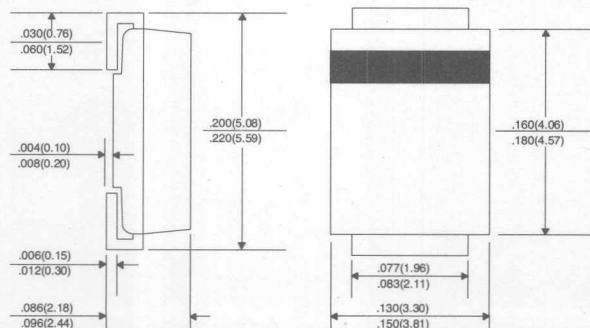
SYMBOL UNITS

P_{PM}	600	W
I_{FSM}	100	A
T_J, T_{stg}	-65 to +150	°C

TYPE NO.	BREAKDOWN VOLTAGE				WORKING PEAK REVERSE VOLTAGE V_{RWM} VOLTS	MAXIMUM REVERSE LEAKAGE @ V_{RWM} I_R μA	MAXIMUM REVERSE SURGE CURRENT I_{RSM} A	MAXIMUM REVERSE VOLTAGE @ I_{RSM} V_{RSM} VOLTS	MAXIMUM TEMP. COEFFICIENT of V_{BR} %/°C	MARKING CODE
	V_{BR}			@ I_T						
VOLTS			mA	VOLTS						
MIN	NOM	MAX								
P6SMB22CA	20.9	22	23.1	1	18.8	5	20	30.6	0.092	C22C
P6SMB24CA	22.8	24	25.2	1	20.5	5	18	33.2	0.094	C24C
P6SMB27CA	25.7	27	28.4	1	23.1	5	16	37.5	0.096	C27C
P6SMB30CA	28.5	30	31.5	1	25.6	5	14.4	41.4	0.097	C30C
P6SMB33CA	31.4	33	34.7	1	28.2	5	13.2	45.7	0.098	C33C
P6SMB36CA	34.2	36	37.8	1	30.8	5	12.0	49.9	0.099	C36C
P6SMB39CA	37.1	39	41.0	1	33.3	5	11.2	53.9	0.100	C39C
P6SMB43CA	40.9	43	45.2	1	36.8	5	10.1	59.3	0.101	C43C
P6SMB47CA	44.7	47	49.4	1	40.2	5	9.3	64.8	0.101	C47C
P6SMB51CA	48.5	51	53.6	1	43.6	5	8.6	70.1	0.102	C51C
P6SMB56CA	53.2	56	58.8	1	47.8	5	7.8	77	0.103	C56C
P6SMB62CA	58.9	62	65.1	1	53.0	5	7.1	85	0.104	C62C
P6SMB68CA	64.6	68	71.4	1	58.1	5	6.5	92	0.104	C68C
P6SMB75CA	71.3	75	78.8	1	64.1	5	5.8	103	0.105	C75C
P6SMB82CA	77.9	82	86.1	1	70.1	5	5.3	113	0.105	C82C
P6SMB91CA	86.5	91	95.5	1	77.8	5	4.8	125	0.106	C91C
P6SMB100CA	95.0	100	105	1	85.5	5	4.4	137	0.106	C100C
P6SMB110CA	104.5	110	115.5	1	94.0	5	4.0	152	0.107	C110C
P6SMB120CA	114	120	126	1	102	5	3.6	165	0.107	C120C
P6SMB130CA	123.5	130	136.5	1	111	5	3.3	179	0.107	C130C
P6SMB150CA	142.5	150	157.5	1	128	5	2.9	207	0.108	C150C
P6SMB160CA	152	160	168	1	136	5	2.7	219	0.108	C160C
P6SMB170CA	161.5	170	178.5	1	145	5	2.6	234	0.108	C170C
P6SMB180CA	171	180	189	1	154	5	2.4	246	0.108	C180C
P6SMB200CA	190	200	210	1	171	5	2.2	274	0.108	C200C

All dimensions in inches (mm).

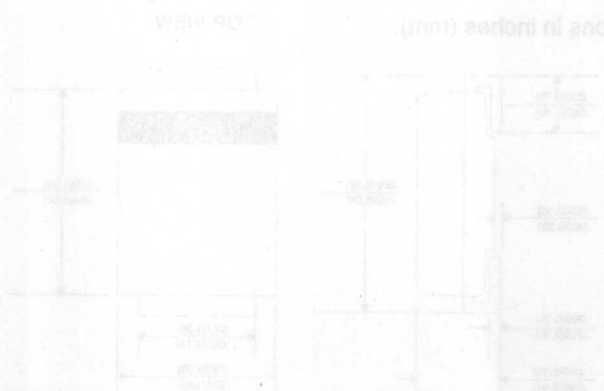
TOP VIEW



DATA
SHEET

R2

PART NUMBER	MAXIMUM POWER DISSIPATION WATTS	MAXIMUM JUNCTION TEMPERATURE °C	MAXIMUM RATED CURRENT A	MAXIMUM RATED VOLTAGE V	MAXIMUM RATED POWER DISSIPATION WATTS	OPERATING TEMPERATURE RANGE				PACKAGE
						°C				
						MIN	MAX	MIN	MAX	
2550	0.005	255	10	2	10	10	10	10	2550A	
2551	0.005	255	10	2	10	10	10	10	2551A	
2552	0.005	255	10	2	10	10	10	10	2552A	
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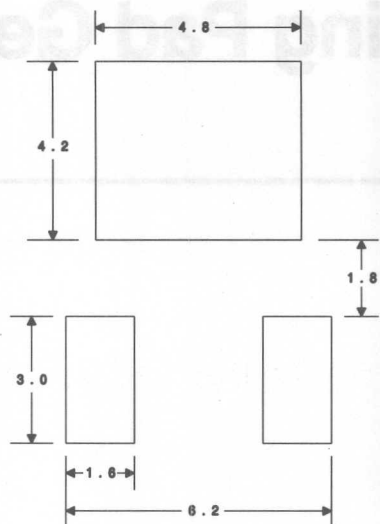
Mounting Pad Geometries

PAD
GEOM

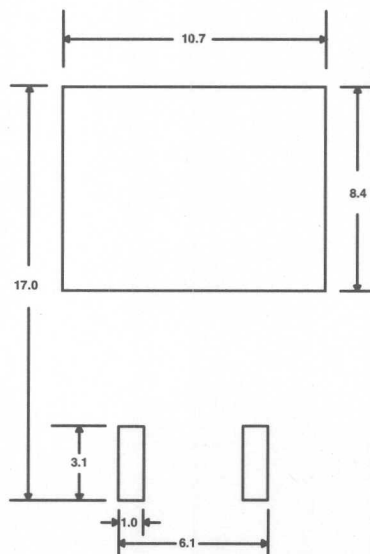
Mounting Pad Geometries

(Dimensions in mm.)

DPAK



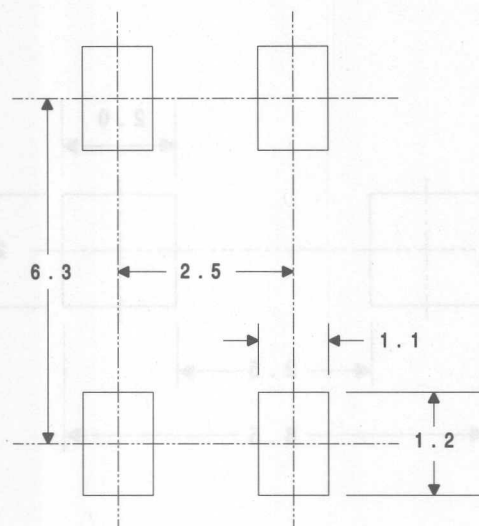
D²PAK



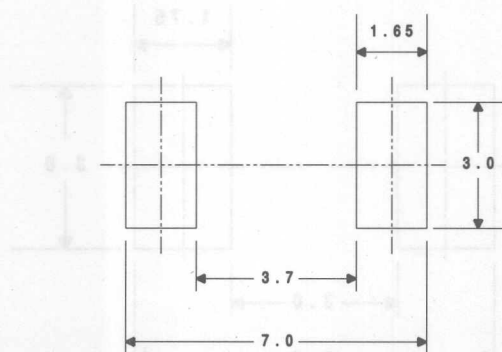
Mounting Pad Geometries

(Dimensions in mm.)

HD DIP



MELF

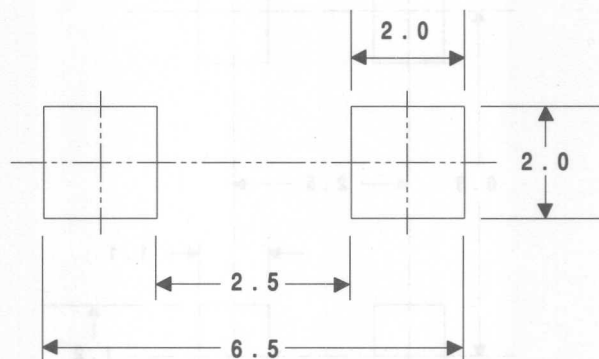


PAD
GEOM

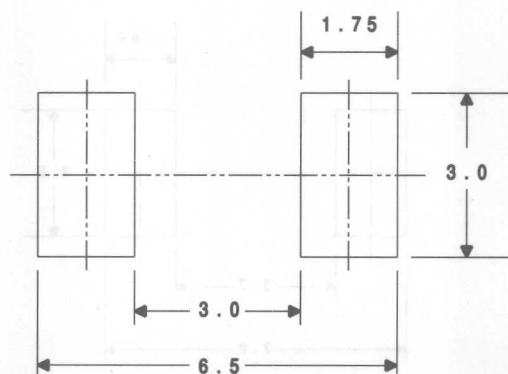
Mounting Pad Geometries (Continued)

(Dimensions in mm.)

SMA



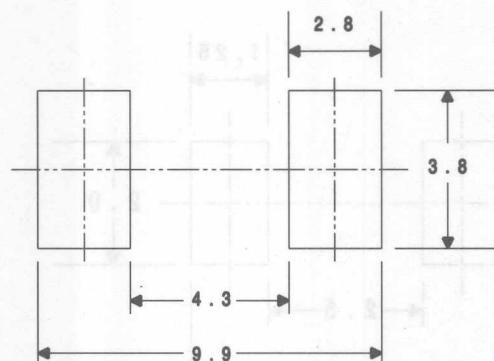
SMB



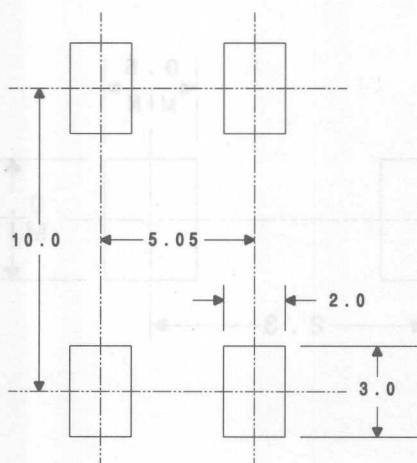
Mounting Pad Geometries (Continued)

(Dimensions in mm.)

SMC



SMDIP

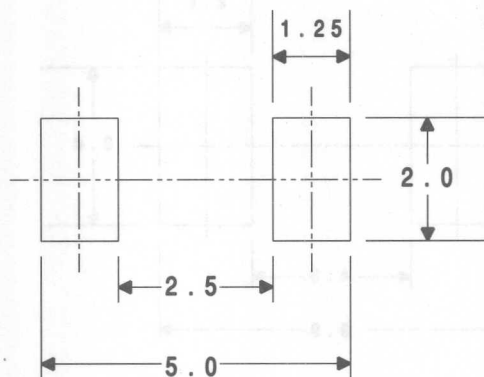


PAD
GEOM

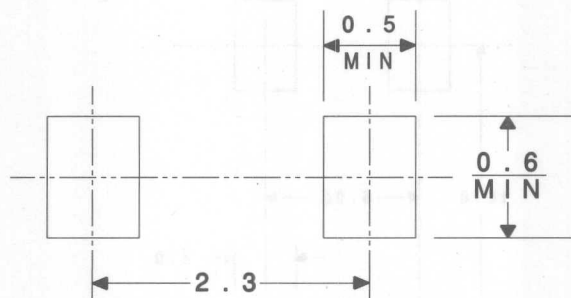
Mounting Pad Geometries (Continued)

(Dimensions in mm.)

SOD-80

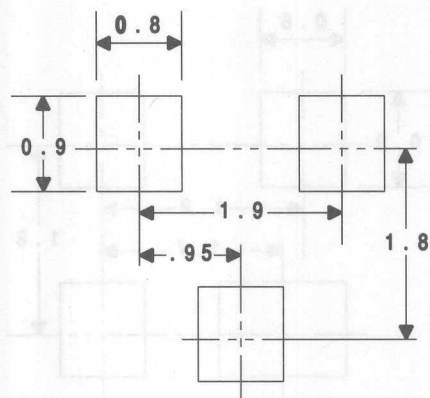


SOD-323

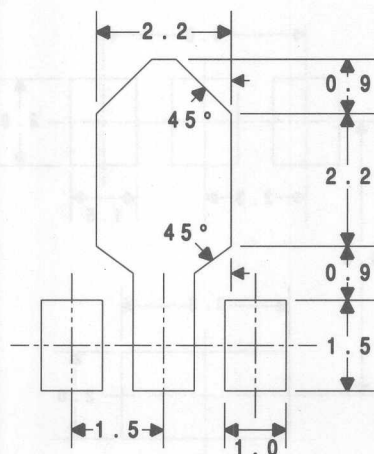


Mounting Pad Geometries (Continued) (Dimensions in mm.)

SOT-23



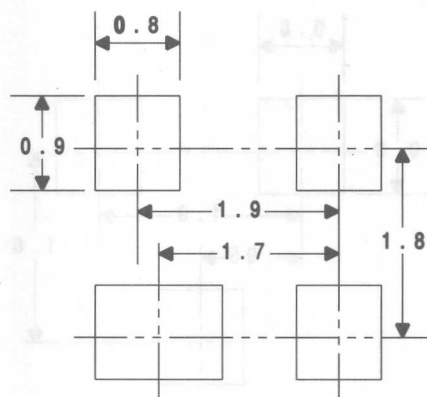
SOT-89



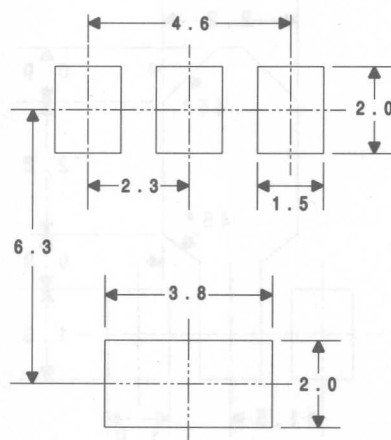
PAD
GEOM

Mounting Pad Geometries (Continued) (Dimensions in mm.)

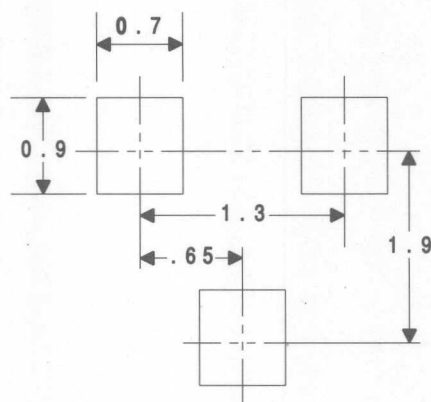
SOT-143



SOT-223



SOT-323

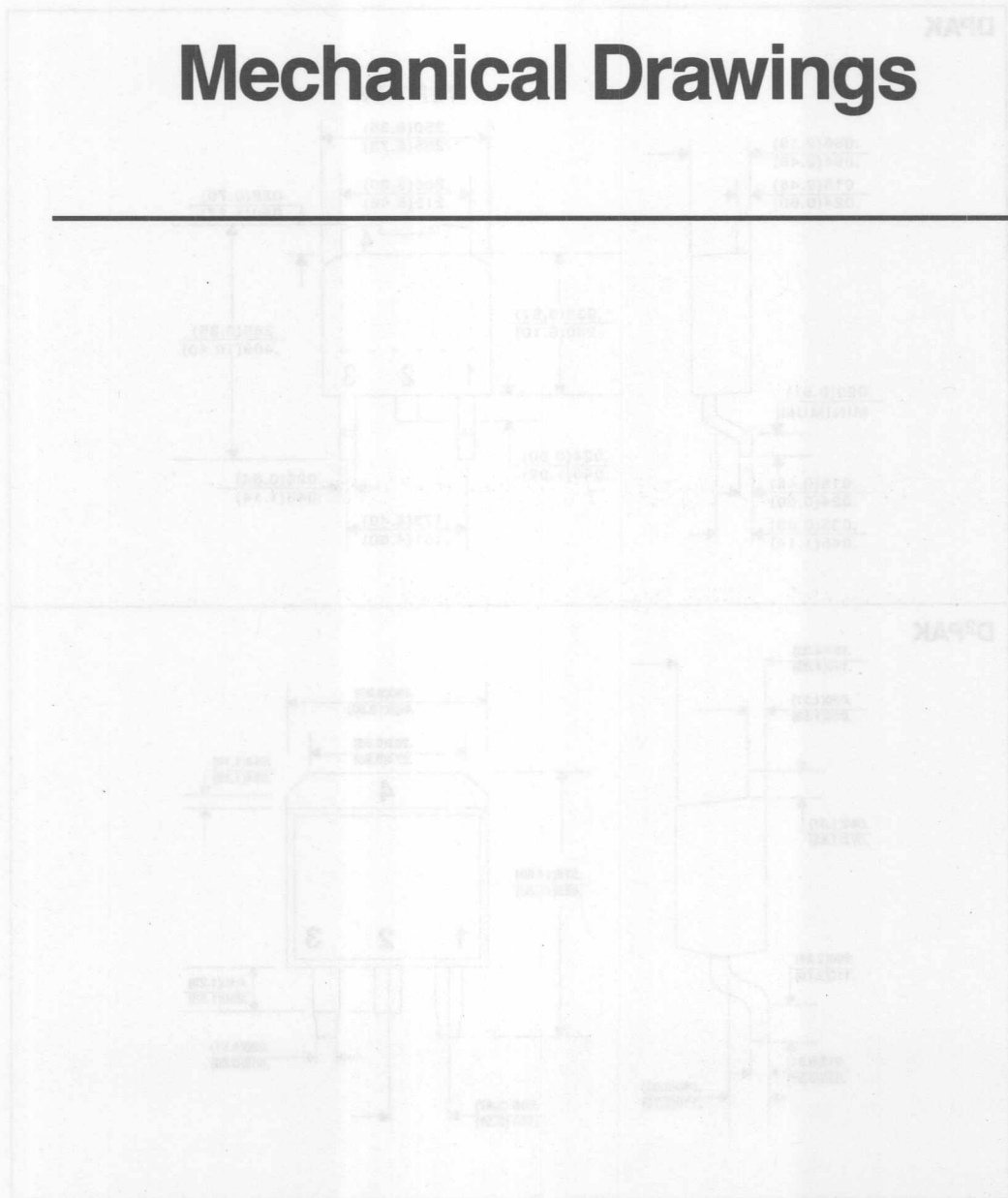


PAD
GEOM

ESB-108



Mechanical Drawings

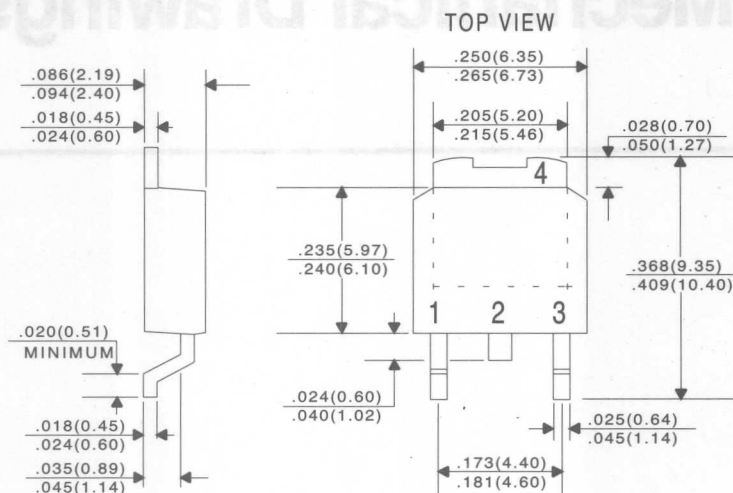


DWG's

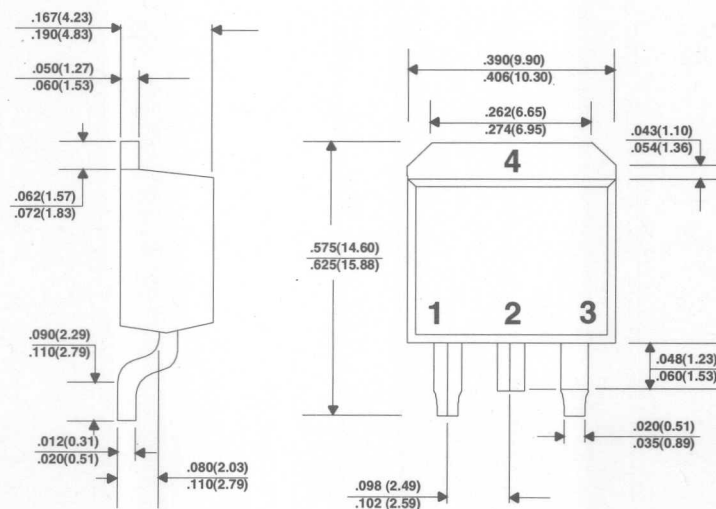
Mechanical Drawings

Dimensions in inches (mm).

DPAK



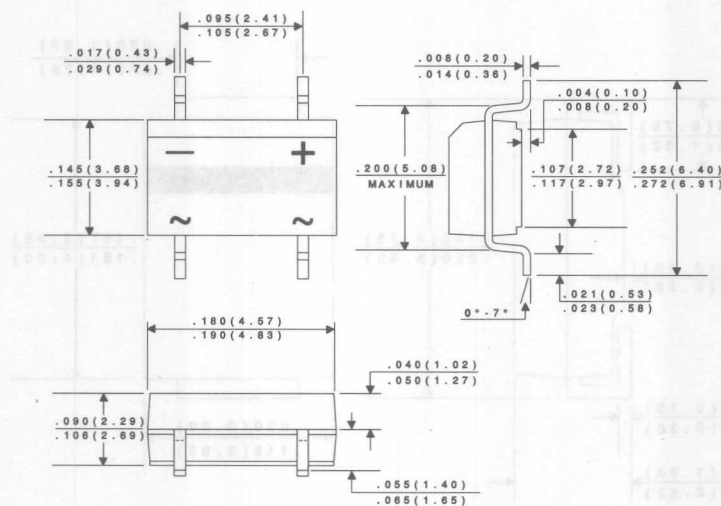
D²PAK



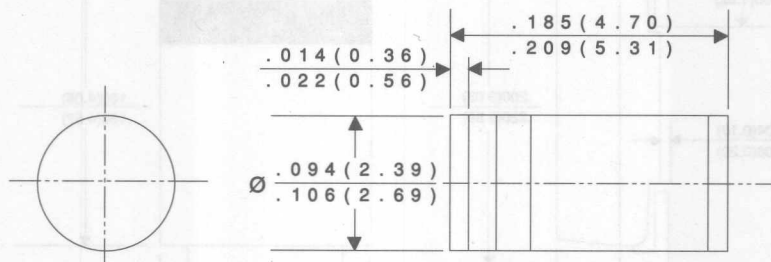
Mechanical Drawings (Continued)

Dimensions in inches (mm).

HD DIP



MELF

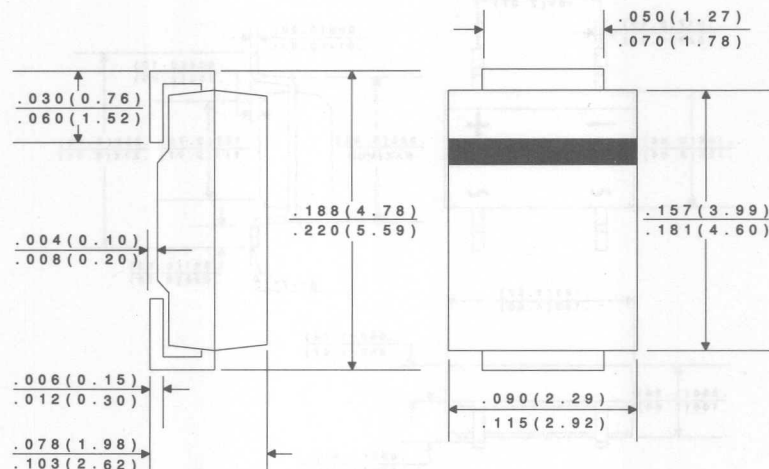


DWG's

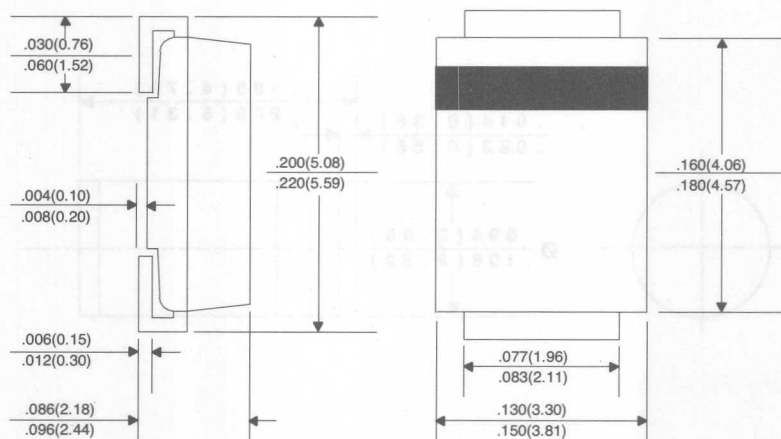
Mechanical Drawings (Continued)

Dimensions in inches (mm).

SMA



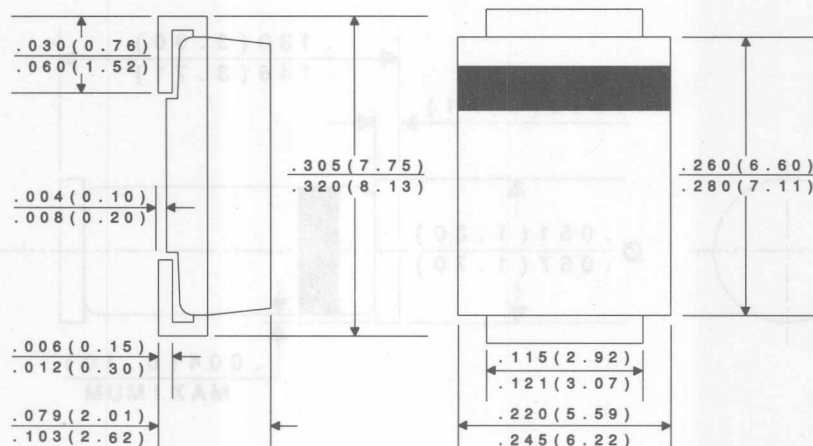
SMB



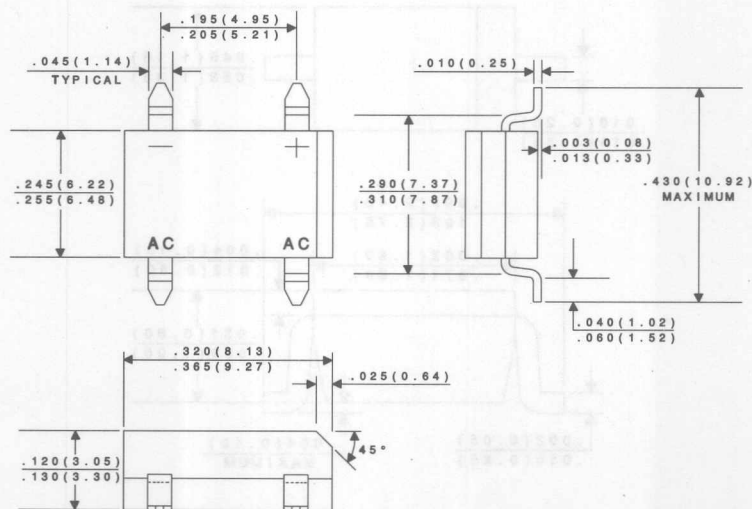
Mechanical Drawings (Continued)

Dimensions in inches (mm).

SMC



SMDIP

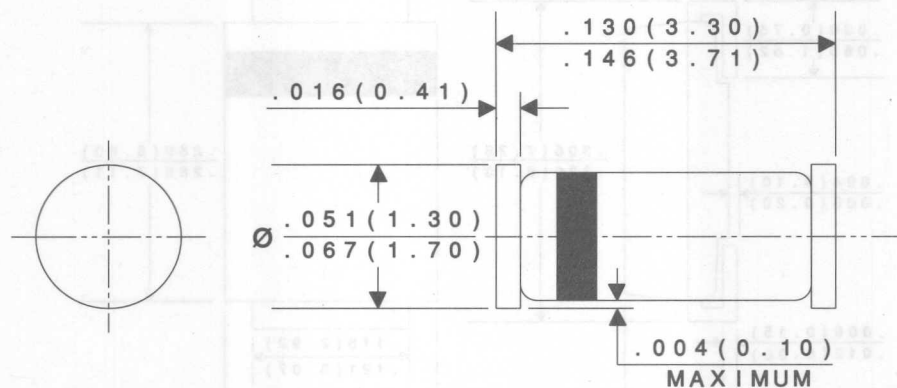


DWG's

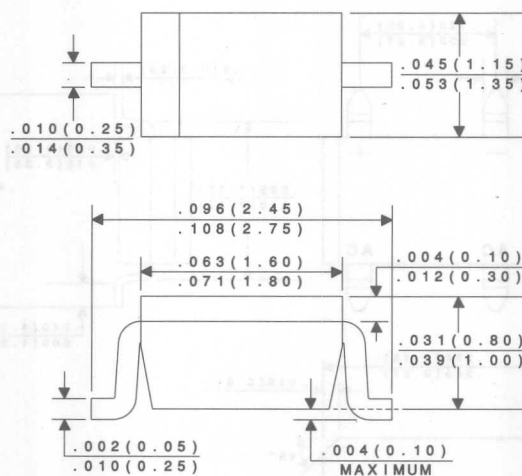
Mechanical Drawings (Continued)

Dimensions in inches (mm).


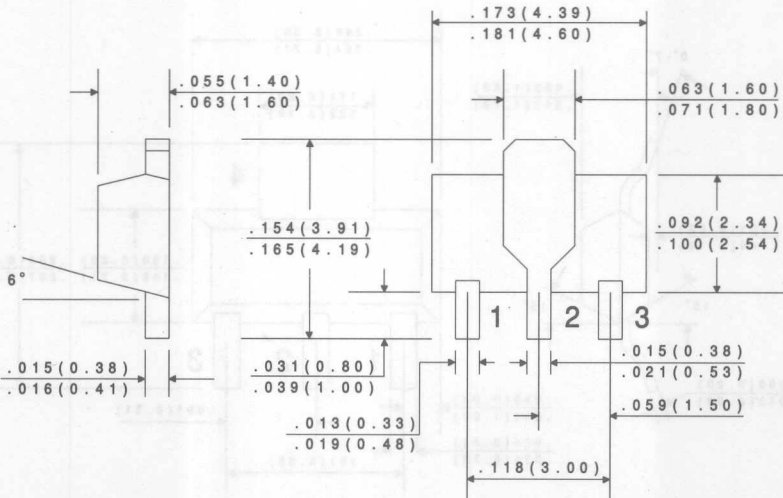
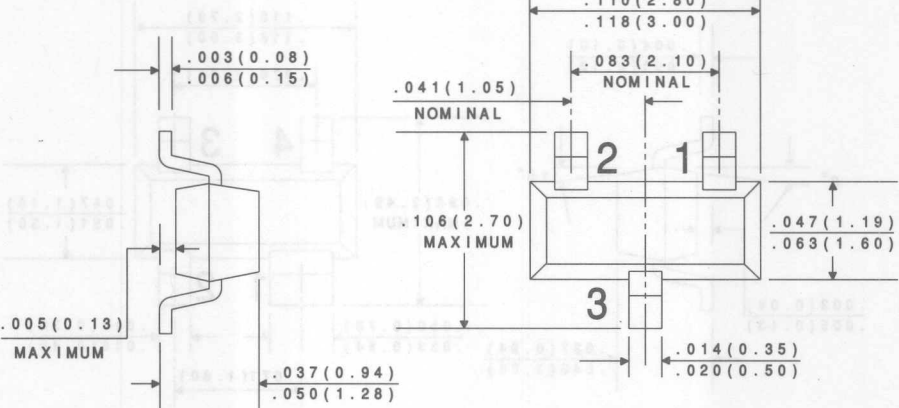
SOD-80



SOD-323



EAT-TOE

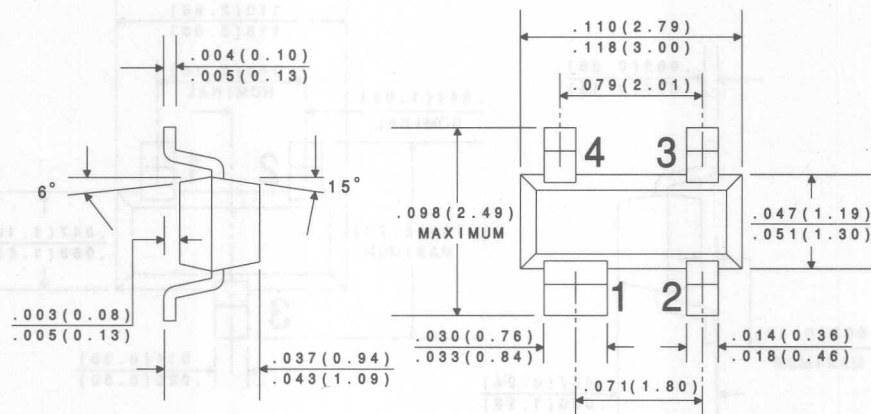


DWG's

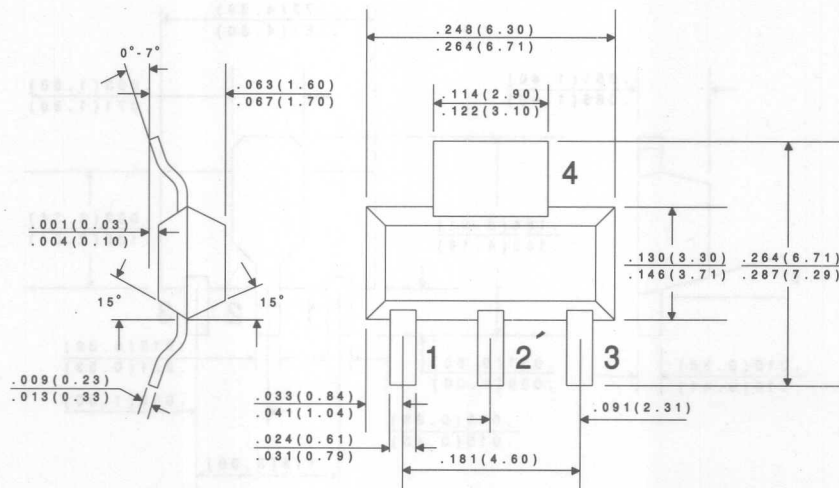
Mechanical Drawings (Continued)

Dimensions in inches (mm).

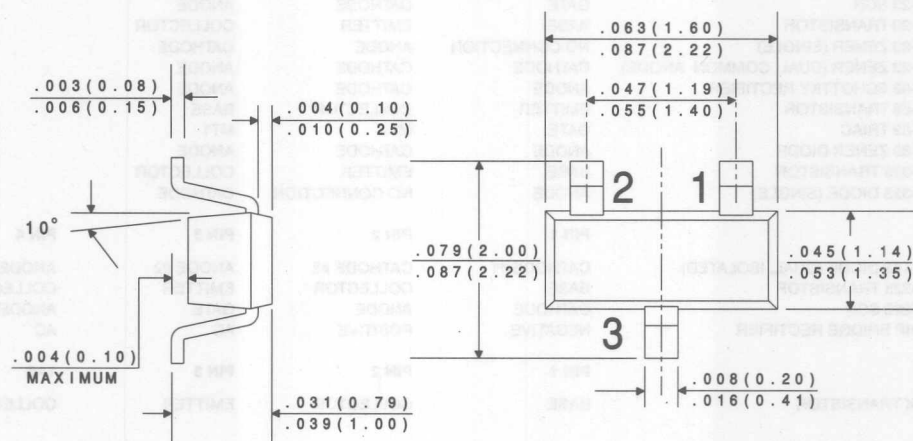
SOT-143



SOT-223



SOT-323



(see pinout notes on next page)

DWG's

LEAD CODE

SOT-23 DIODE (SINGLE)
SOT-23 DIODE (DUAL, COMMON CATHODE)
SOT-23 DIODE (DUAL, COMMON ANODE)
SOT-23 DIODE (DUAL, IN SERIES)
SOT-23 JFET
SOT-23 STABISTOR
SOT-23 SCR
SOT-23 TRANSISTOR
SOT-23 ZENER (SINGLE)
SOT-23 ZENER (DUAL, COMMON ANODE)
SOT-89 SCHOTTKY RECTIFIER
SOT-89 TRANSISTOR
SOT-89 TRIAC
SOT-89 ZENER DIODE
SOT-323 TRANSISTOR
SOT-323 DIODE (SINGLE)

PIN 1

NO CONNECTION
ANODE
CATHODE
CATHODE
SOURCE*
NO CONNECTION
GATE
BASE
NO CONNECTION
CATHODE
ANODE
EMITTER
GATE
ANODE
BASE
ANODE

PIN 2

ANODE
ANODE
CATHODE
ANODE
DRAIN*
ANODE
CATHODE
EMITTER
ANODE
CATHODE
CATHODE
COLLECTOR
MT2
CATHODE
EMITTER
NO CONNECTION

PIN 3

CATHODE
CATHODE
ANODE
CATHODE, ANODE
GATE
CATHODE
ANODE
COLLECTOR
CATHODE
ANODE
ANODE
BASE
MT1
ANODE
COLLECTOR
CATHODE

PIN 1

SOT-143 DIODE (DUAL, ISOLATED)
SOT-223 TRANSISTOR
SOT-223 SCR
SMDIP BRIDGE RECTIFIER

CATHODE #1
BASE
CATHODE
NEGATIVE

PIN 2

CATHODE #2
COLLECTOR
ANODE
POSITIVE

PIN 3

ANODE #2
EMITTER
GATE
AC

PIN 4

ANODE #1
COLLECTOR
ANODE
AC

PIN 1

DPAK TRANSISTOR

BASE

PIN 2

COLLECTOR

PIN 3

EMITTER

TAB

COLLECTOR

* SOURCE AND DRAIN ARE INTERCHANGEABLE ON JFETs.

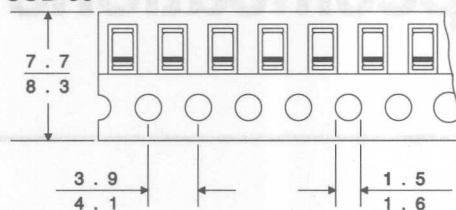
Engineering Specifications

	Page
Tape and Reel Dimensions and Orientation	440
Reel Labeling Information	444
Standard Packaging Base	444
Device Marking Information	444
Reel Packing Details	445
Package Labeling	446
Bar Code Identification Label	447

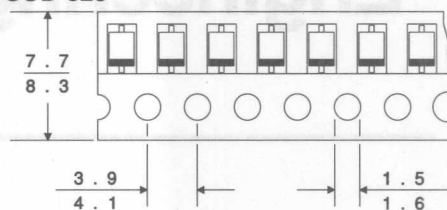
Tape Dimensions and Orientation (Dimensions in mm.)

8 mm

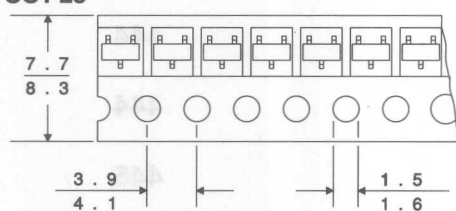
SOD-80



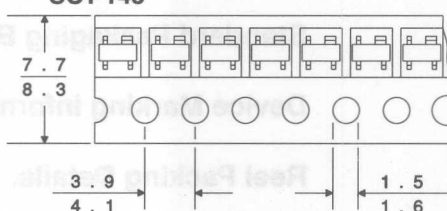
SOD-323



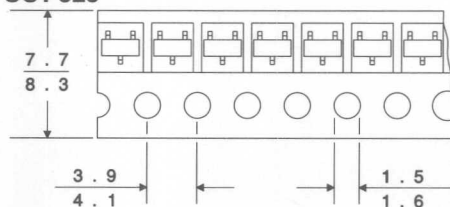
SOT-23



SOT-143



SOT-323



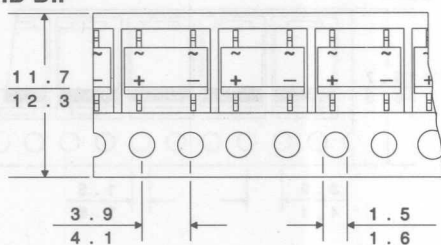
Direction of Unreeling



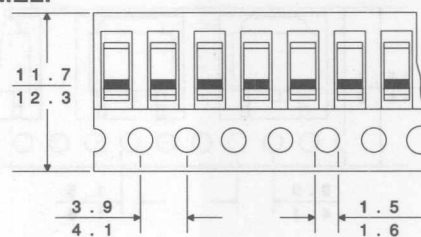
Tape Dimensions and Orientation (Dimensions in mm.) (Continued)

12 mm

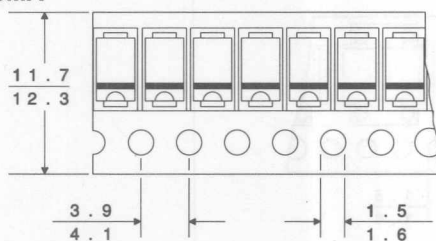
HD DIP



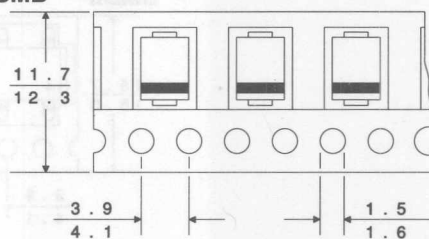
MELF



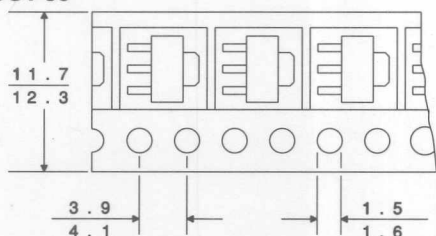
SMA



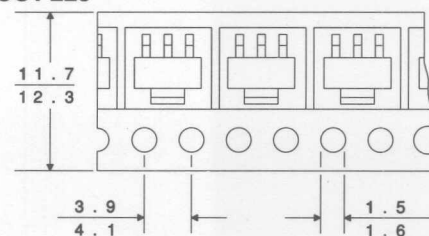
SMB



SOT-89



SOT-223



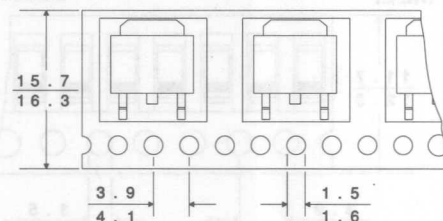
Direction of Unreeling



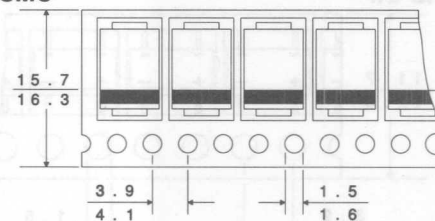
Tape Dimensions and Orientation (Dimensions in mm.) (Continued)

16 mm

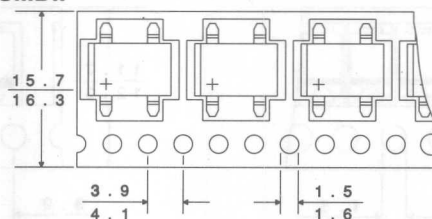
DPAK



SMC

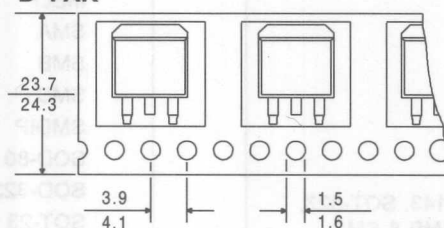


SMDIP



Direction of Unreeling
←

(Continued)

D²PAK

Direction of Unreeling

Each reel is labeled with the following information:

Central Part Number
Customer Part Number
Purchase Order Number
Quantity
Lot Number
Date Code
Ship Date
Marking Code *

* Applies to SOT-23, SOT-143, SOT-323, SOD-323, HD DIP, SMA, SMB & SMC devices only.

Case Marking Details

DPAK	Full Part Number
D2PAK	Full Part Number
HD DIP	4 Digit Code
MELF	Cathode Band
SMA	4-5 Digit Code
SMB	3-4 Digit Code
SMC	3-4 Digit Code
SMDIP	Full Part Number
SOD-80	Cathode Band
SOD-323	2 Digit Code
SOT-23	2-3 Digit Code
SOT-89	Full Part Number
SOT-143	2-3 Digit Code
SOT-223	Full Part Number
SOT-323	2-3 Digit Code

Taped & Reeled Packaging Base

PACKAGE	TAPE WIDTH (mm)	REEL SIZE (INCH)	QUANTITY PER REEL
DPAK*	16	13	2,500
D ² PAK*	24	13	800
HD DIP*	12	13	3,000
MELF	12	7 13	1,500 5,000
SMA*	12	13	5,000
SMB*	12	13	3,000
SMC*	16	13	3,000
SMDIP*	16	13	1,000
SOD-80	8	7 13	2,500 10,000
SOD-323	8	7 13	3,000 10,000
SOT-23	8	7 13	3,000 10,000
SOT-89	12	7 13	1,000 4,000
SOT-143	8	7 13	3,000 10,000
SOT-223	12	7 13	1,000 4,000
SOT-323	8	7 13	3,000 10,000

Bulk Packed Packaging Base

PACKAGE	QUANTITY
DPAK	100 / Vial
D ² PAK	50 / Vial
HD DIP	100 / Sleeve
MELF	1K/Vial
SMA	1K / Vial
SMB	500 / Vial
SMC	100 / Vial
SMDIP	50 / Sleeve
SOD-80	1K / Vial
SOD-323	1K / Vial
SOT-23	1K / Vial
SOT-89	1K / Vial
SOT-143	1K / Vial
SOT-223	250 / Vial
SOT-323	1K / Vial

* Available on 13" reels only.

Reel Packing Details

DEVICE	QUANTITY PER BOX	NUMBER OF REELS PER BOX	BOX DIMENSIONS		SHIPPING WEIGHT	
			INCH	CM	LB	KG
DPAK TR13	13K	13 Reels	14 X 14 X 8	36 X 36 X 20	22	10
D ² PAK TR13	5.6K	7 Reels	14 X 14 X 8	36 X 36 X 20	25	12
HD DIP TR13	39K	13 Reels	14 X 14 X 8	36 X 36 X 20	31	14
MELF TR	10.5K	7 Reels	8 X 8 X 4	20 X 20 X 10	5	3
	70K	14 Reels	8 X 8 X 8	20 X 20 X 20	9	5
SMA TR13	55K	11 Reels	14 X 14 X 8	36 X 36 X 20	22	10
SMB TR13	33K	11 Reels	14 X 14 X 8	36 X 36 X 20	22	10
SMC TR13	39K	13 Reels	14 X 14 X 8	36 X 36 X 20	22	10
SMDIP TR13	13K	13 Reels	14 X 14 X 8	36 X 36 X 20	22	10
SOD-80 TR	25K	10 Reels	8 X 8 X 4	20 X 20 X 10	4	2
	47.5K	19 Reels	8 X 8 X 8	20 X 20 X 20	7	4
SOD-323 TR	30K	10 Reels	8 X 8 X 4	20 X 20 X 10	3	2
	57K	19 Reels	8 X 8 X 8	20 X 20 X 20	5	3
SOT-23 TR	30K	10 Reels	8 X 8 X 4	20 X 20 X 10	3	2
	57K	19 Reels	8 X 8 X 8	20 X 20 X 20	5	3
SOT-89 TR	7K	7 Reels	8 X 8 X 4	20 X 20 X 10	3	2
	14K	14 Reels	8 X 8 X 8	20 X 20 X 20	6	3
SOT-143 TR	30K	10 Reels	8 X 8 X 4	20 X 20 X 10	3	2
	57K	19 Reels	8 X 8 X 8	20 X 20 X 20	5	3
SOT-223 TR	7K	7 Reels	8 X 8 X 4	20 X 20 X 10	4	2
	14K	14 Reels	8 X 8 X 8	20 X 20 X 20	7	4
SOT-323 TR	30K	10 Reels	8 X 8 X 4	20 X 20 X 10	3	2
	57K	19 Reels	8 X 8 X 8	20 X 20 X 20	5	3

ORDERING INFO:

- For devices taped and reeled on 7" reels, add TR suffix to part number.
- For devices taped and reeled on 13" reels, add TR13 suffix to part number
- For devices bulk packed, add BK suffix to part number.
- All SMDs are available bulk packed, for prototype and manual placement applications.
- Bulk SMDs are shipped in black plastic, antistatic vials with hinged lids.

Central

Semiconductor Corp.

Labeling Specification

1.0. Purpose: This Specification defines the layout and identification of the Inner Carton/ Reel Label used by Central Semiconductor Corp.

1.1. This label must be affixed to each inner carton/reel in the shipment.

1.2. Label Information and Layout:

- | | |
|------------------|--|
| 1) CENTRAL P/N: | Line 1) Central Part Number
Number (Up to 25 Characters) |
| 2) CUSTOMER P/N: | Line 2) Customer Part Number
(Up to 25 Characters) |
| 3) PURCHASE O/N: | Line 3) Customer's Purchase Order
Number (Up to 25 Characters) |
| 4) QUANTITY: | Line 4) Quantity of Devices.
(Up to 15 Characters) |
| 5) LOT NUMBER: | Line 5) Lot Number of the Devices.
(Up to 25 Characters) |
| 6) DATE CODE: | Line 6) Date Code of the Devices.
(Up to 5 Characters) |
| 7) SHIP DATE: | Line 7) Ship Date - The day cartons are
shipped from Central.
(Month-Day-Year) |
| 8) MARKING CODE: | Line 8) Marking of the Device.
(Applies to HD DIP, SOT-23,
SOT-143, SOT-323, SOD-323,
SMA, SMB and SMC Devices only.) |






CentralTM Semiconductor Corp.

Bar Code Identification Label

Note: Bar Code Label Available
Upon Request.

1.0. Purpose: This Specification defines the layout and identification of the Bar Code Label used by Central Semiconductor Corp.

- 1.1. This label must be affixed to each carton in the shipment and to the reverse side of the packing slip.
- 1.2. Bar codes are type 3-of-9 (Code 39) Symbology.
- 1.3. Label Information and Layout:

P.O. NO. XXXXXXXXXX	1) 
PART NO. XXXXXXXXXX	2) 
QUANTITY XXXXXXXXXX	3) 
NO. CARTONS XX	4) 
SHIP DATE XX-XX-XX	5) 
CENTRAL SEMICONDUCTOR CORP. HAUPPAUGE. NY USA	
6) P/N: XXXXXXXXXX	

Line 1) Customer Purchase
Order Number (Up to 30
Characters)

Line 2) Customer Part Number
(Up to 30 Characters)

Line 3) Total Quantity in Shipment.
(Up to 15 Characters)

Line 4) Total Number of Cartons in
Shipment. (Up to 2
Characters)

Line 5) Ship Date - The day
cartons are shipped from
Central.
(Month-Day-Year)

Line 6) Central Semiconductor
Corp., Hauppauge, NY USA
Central Part Number
(Up to 30 Characters)

Label Size - 4" x 5"

SPECs

- Our definition of quality is **Complete Customer Satisfaction**.
- We are dedicated to manufacturing Competitively Priced, **Quality Products** delivered on time and professionally serviced.
- We define **Excellence** as surpassing our customers' expectations.
- Our perpetual challenge is the pursuit of **Achieving Excellence** in everything we do, and we strive to accomplish this by utilizing Ongoing Training for Continuous Improvement in all areas.
- We recognize that customer satisfaction results in **Repeat Business**.



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